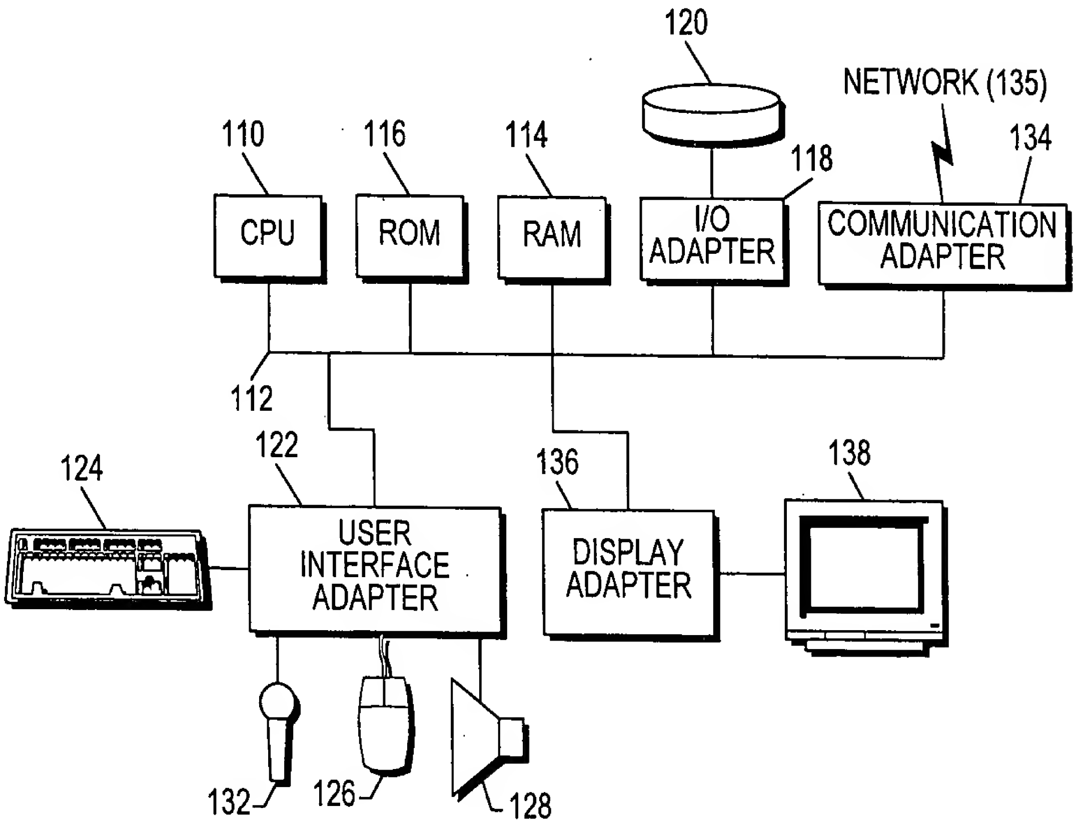

110
CPU
116
ROM
114
RAM
120
118
I/O ADAPTER
NETWORK (135)
134
COMMUNICATION ADAPTER
112
122
USER INTERFACE ADAPTER
124
136
DISPLAY ADAPTER
138
132
126
128

Figure 1

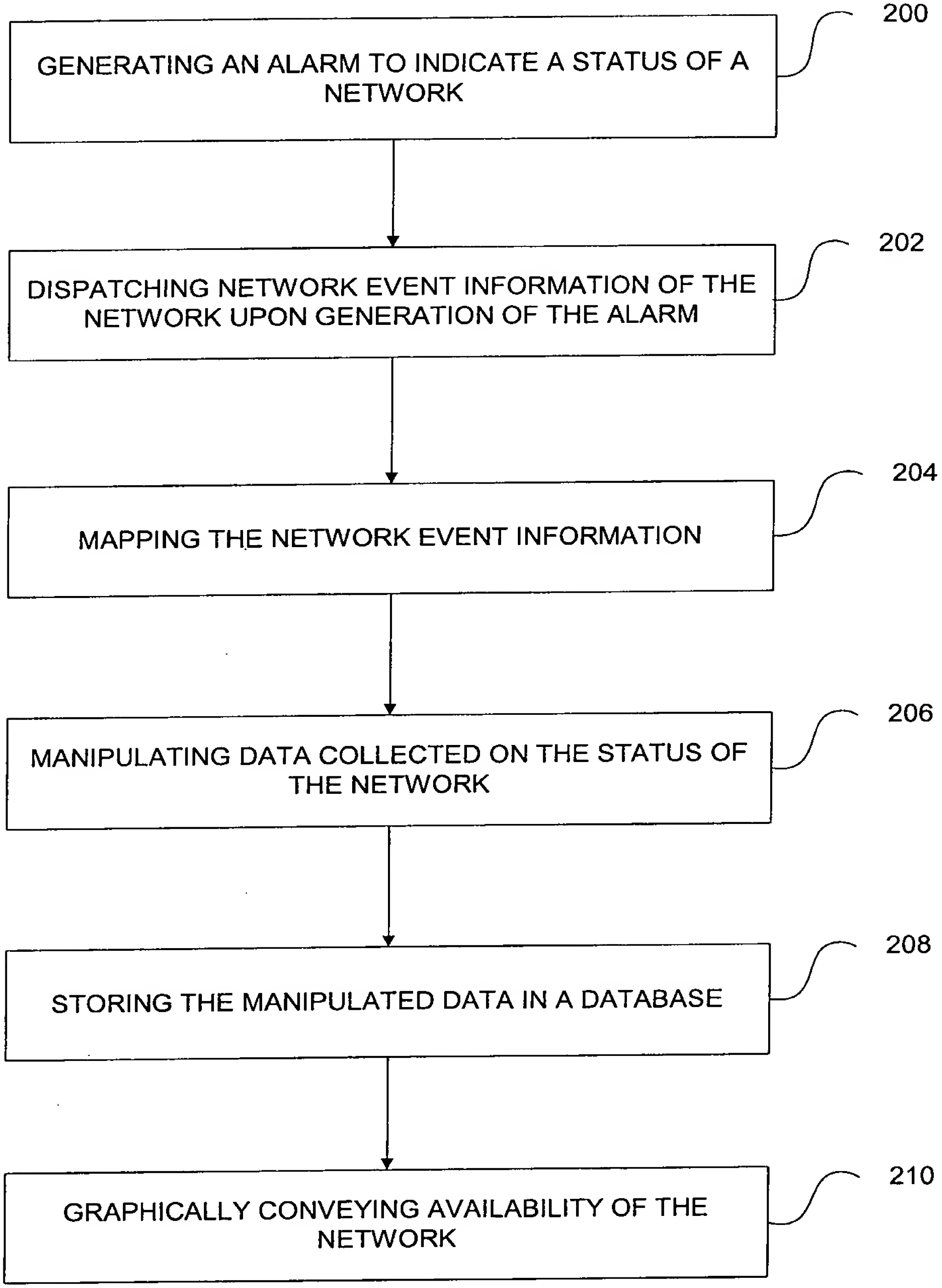

GENERATING AN ALARM TO INDICATE A STATUS OF A NETWORK
200
DISPATCHING NETWORK EVENT INFORMATION OF THE NETWORK UPON GENERATION OF THE ALARM
202
MAPPING THE NETWORK EVENT INFORMATION
204
MANIPULATING DATA COLLECTED ON THE STATUS OF THE NETWORK
206
STORING THE MANIPULATED DATA IN A DATABASE
208
GRAPHICALLY CONVEYING AVAILABILITY OF THE NETWORK
210

Figure 2

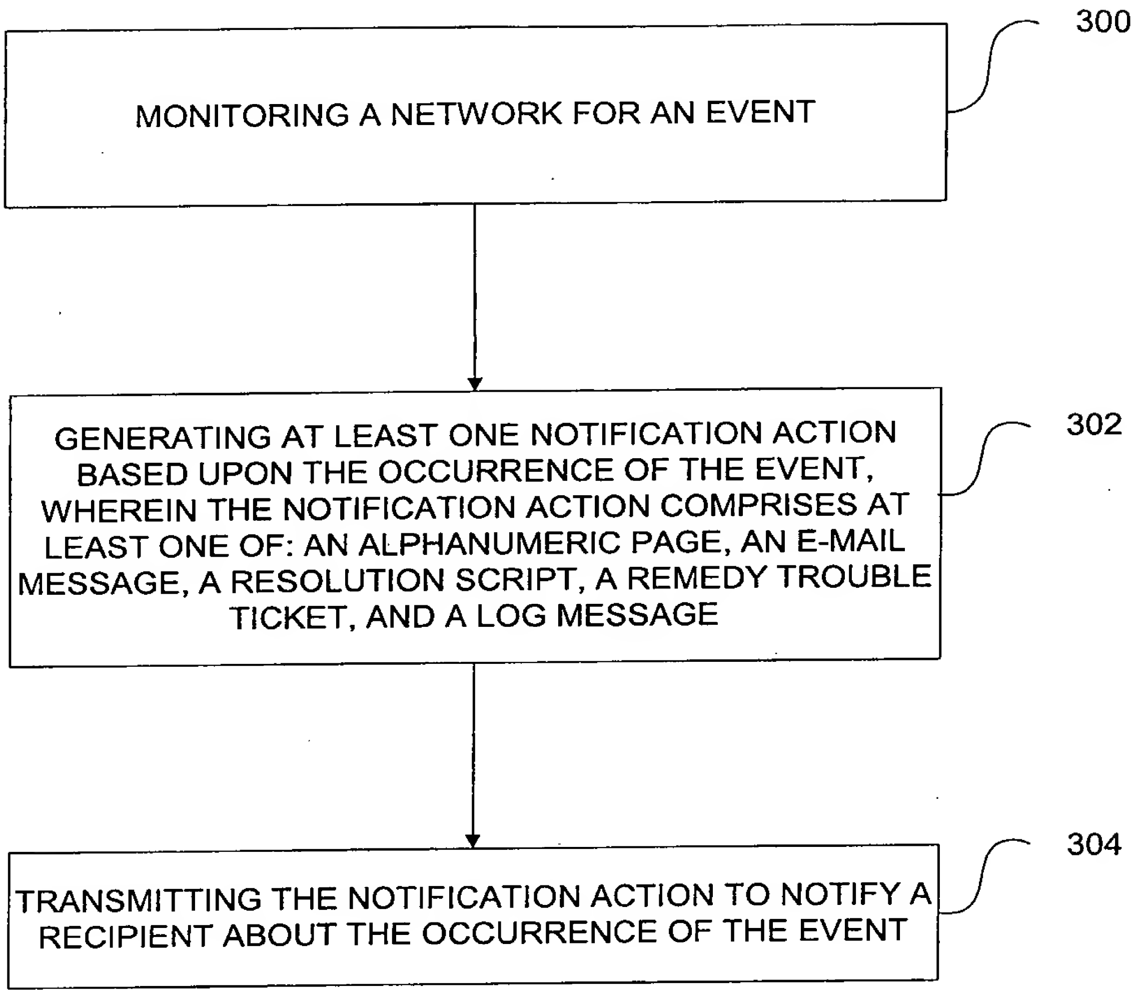

MONITORING A NETWORK FOR AN EVENT
300
GENERATING AT LEAST ONE NOTIFICATION ACTION BASED UPON THE OCCURRENCE OF THE EVENT, WHEREIN THE NOTIFICATION ACTION COMPRISES AT LEAST ONE OF: AN ALPHANUMERIC PAGE, AN E-MAIL MESSAGE, A RESOLUTION SCRIPT, A REMEDY TROUBLE TICKET, AND A LOG MESSAGE
302
TRANSMITTING THE NOTIFICATION ACTION TO NOTIFY A RECIPIENT ABOUT THE OCCURRENCE OF THE EVENT
304

Figure 3

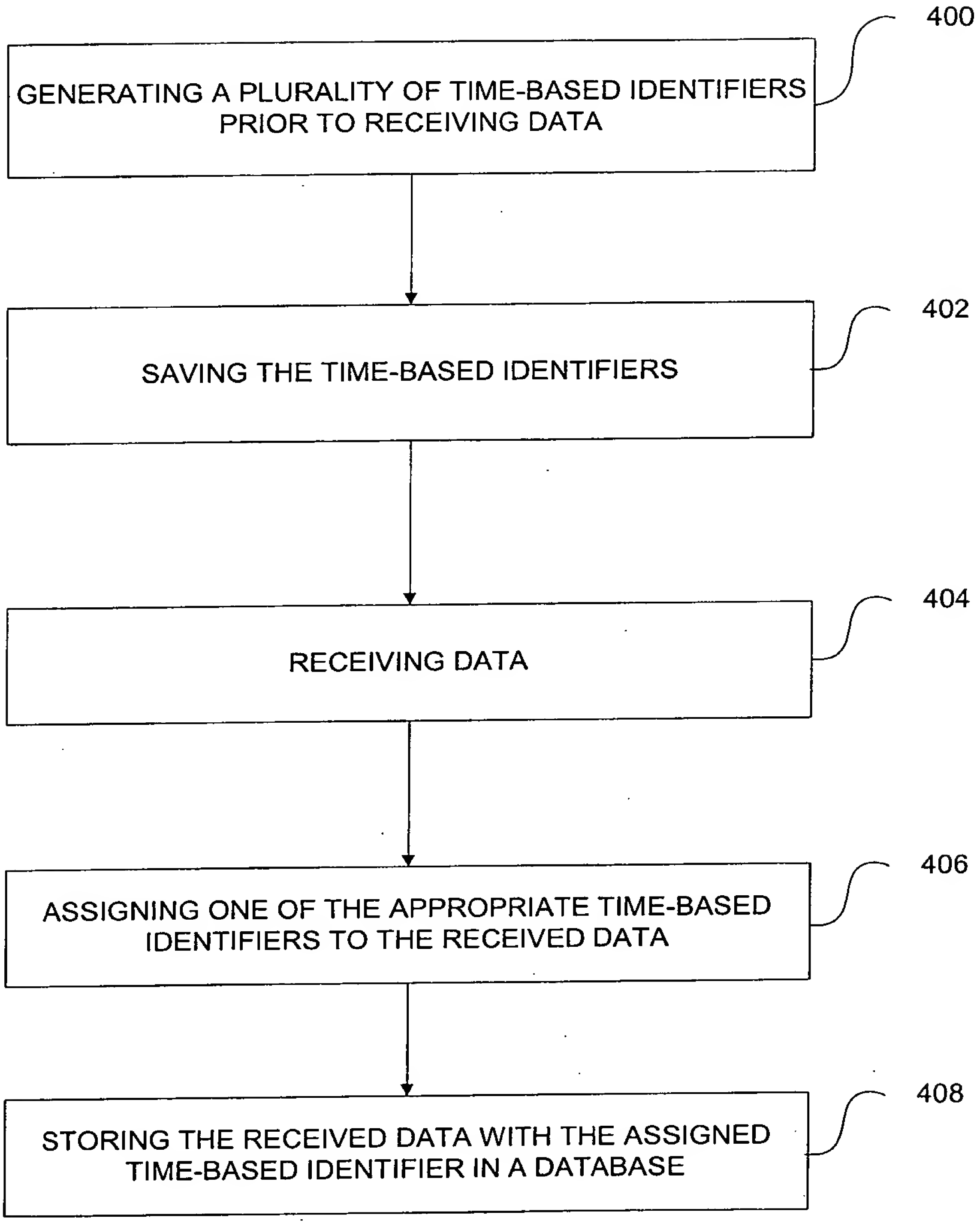

400
GENERATING A PLURALITY OF TIME-BASED IDENTIFIERS PRIOR TO RECEIVING DATA
402
SAVING THE TIME-BASED IDENTIFIERS
404
RECEIVING DATA
406
ASSIGNING ONE OF THE APPROPRIATE TIME-BASED IDENTIFIERS TO THE RECEIVED DATA
408
STORING THE RECEIVED DATA WITH THE ASSIGNED TIME-BASED IDENTIFIER IN A DATABASE

Figure 4

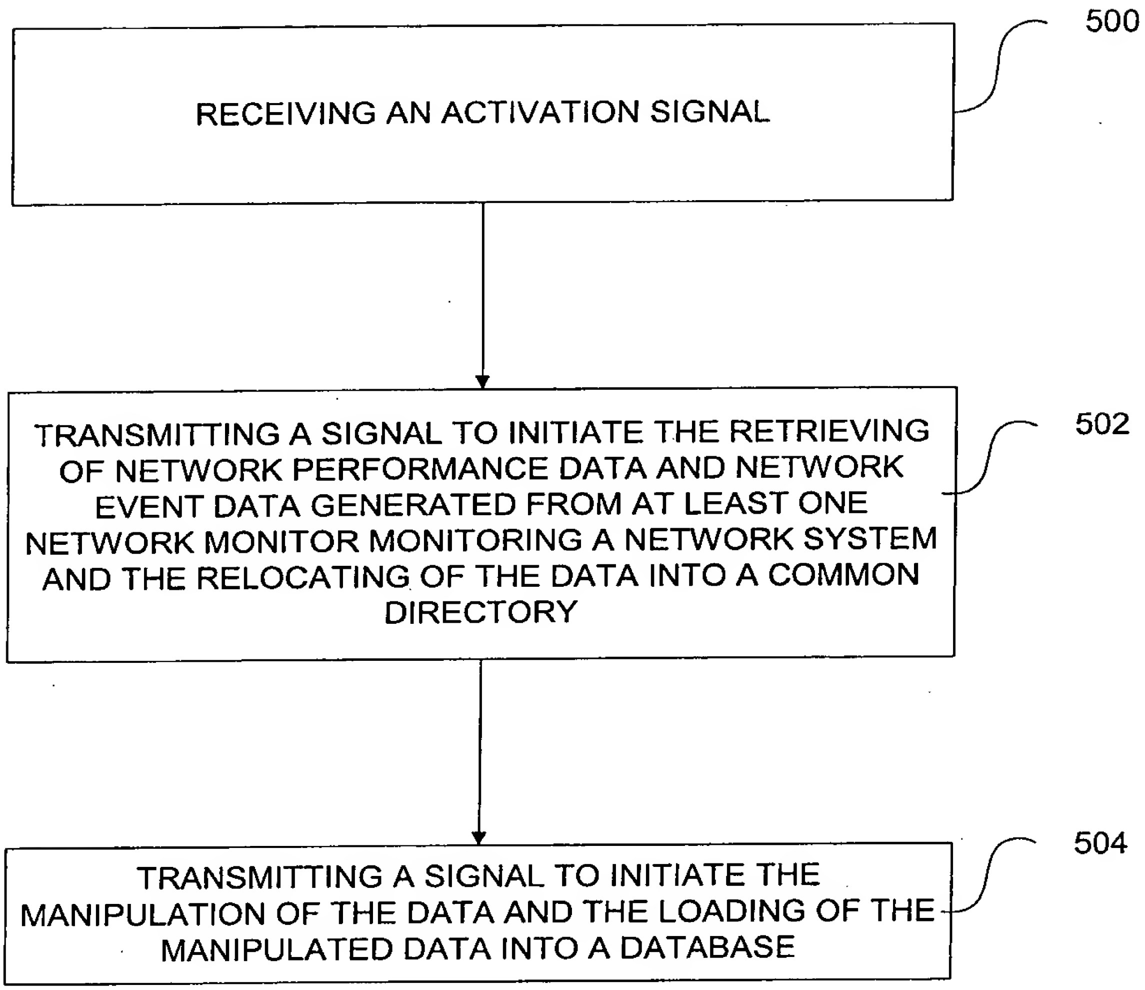

500
RECEIVING AN ACTIVATION SIGNAL
502
TRANSMITTING A SIGNAL TO INITIATE THE RETRIEVING OF NETWORK PERFORMANCE DATA AND NETWORK EVENT DATA GENERATED FROM AT LEAST ONE NETWORK MONITOR MONITORING A NETWORK SYSTEM AND THE RELOCATING OF THE DATA INTO A COMMON DIRECTORY
504
TRANSMITTING A SIGNAL TO INITIATE THE MANIPULATION OF THE DATA AND THE LOADING OF THE MANIPULATED DATA INTO A DATABASE

Figure 5

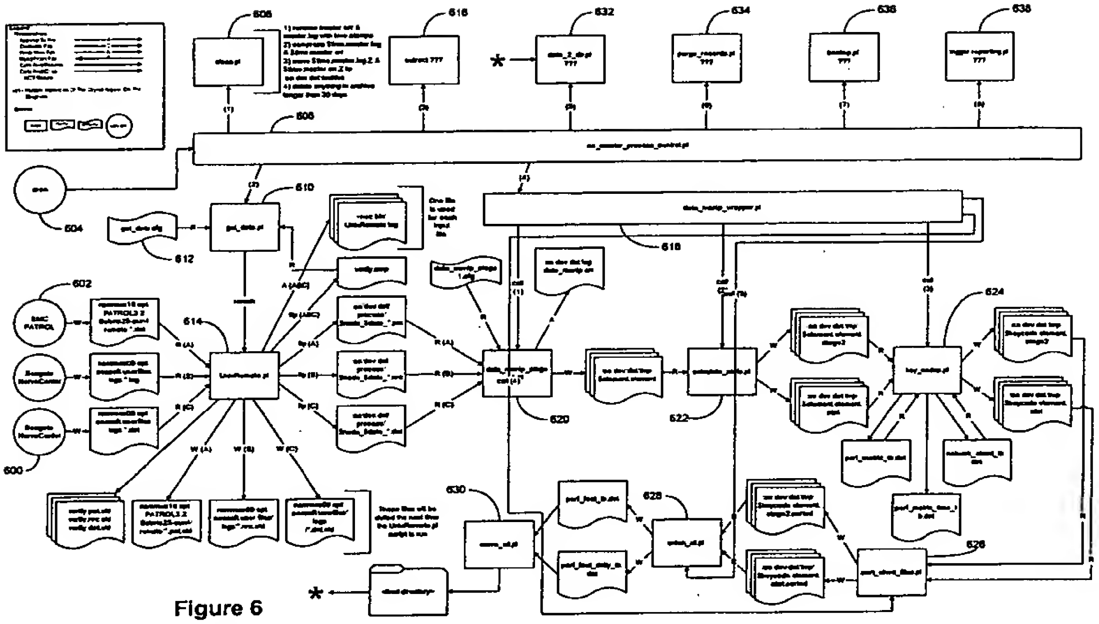

606
616
632
634
636
638
608
610
612
604
602
614
600
618
620
622
624
626
628
630
*
extract ???
???
(1)
(2)
(3)
(4)
(5)
(6)
(7)
(8)
4) delete anything in archive longer than 30 days
One file is used for each input file
BMC PATROL
Seagate NerveCenter
Seagate NerveCenter
R (A)
R (B)
R (C)
W (A)
W (B)
W (C)
A (ABC)
call (1)
call (2)
call (3)
These files will be deleted the next time the UnixRemote.pl script is run

Figure 6

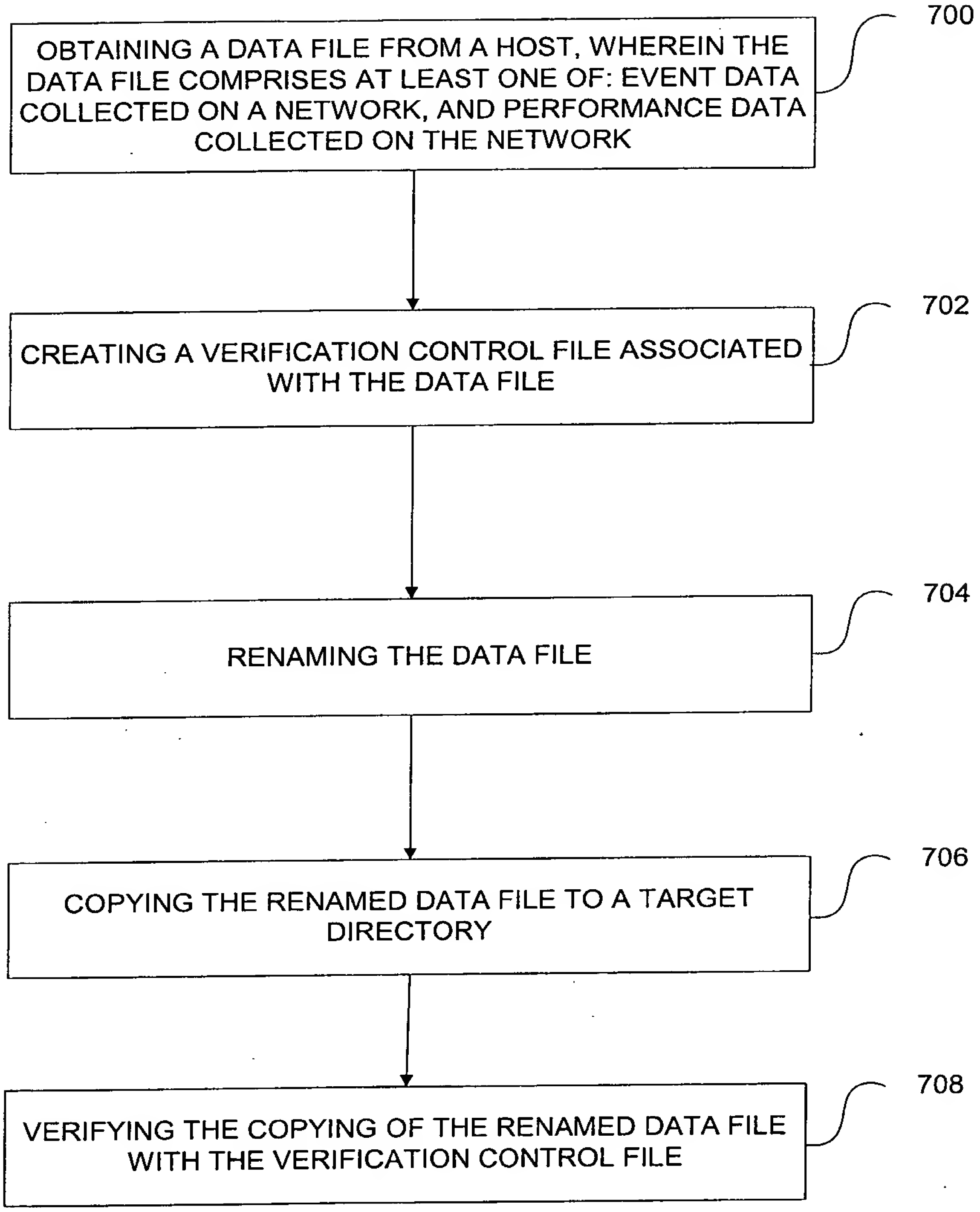

700
OBTAINING A DATA FILE FROM A HOST, WHEREIN THE DATA FILE COMPRISES AT LEAST ONE OF: EVENT DATA COLLECTED ON A NETWORK, AND PERFORMANCE DATA COLLECTED ON THE NETWORK
702
CREATING A VERIFICATION CONTROL FILE ASSOCIATED WITH THE DATA FILE
704
RENAMING THE DATA FILE
706
COPYING THE RENAMED DATA FILE TO A TARGET DIRECTORY
708
VERIFYING THE COPYING OF THE RENAMED DATA FILE WITH THE VERIFICATION CONTROL FILE

Figure 7

09471777.122399

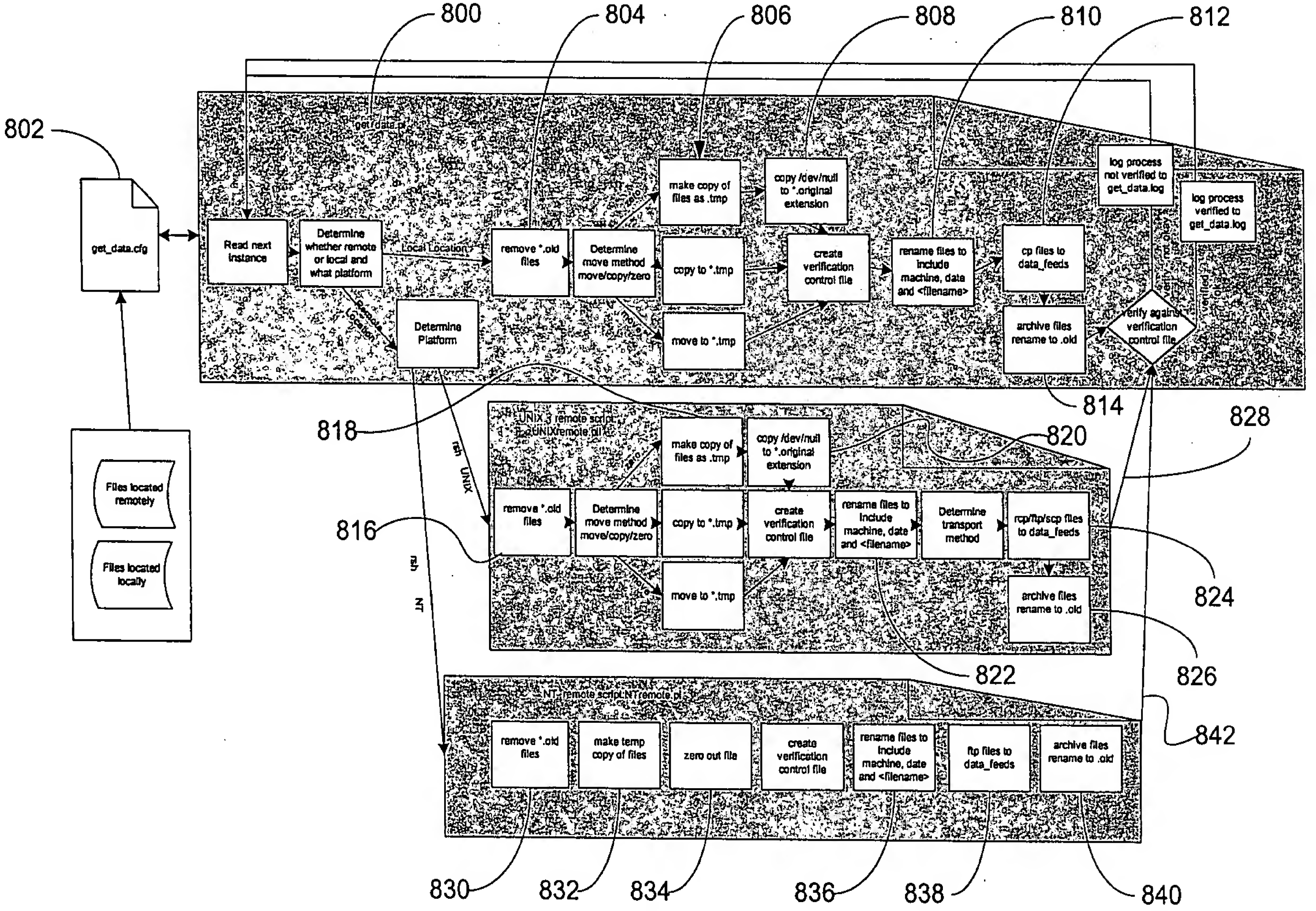


Figure 8

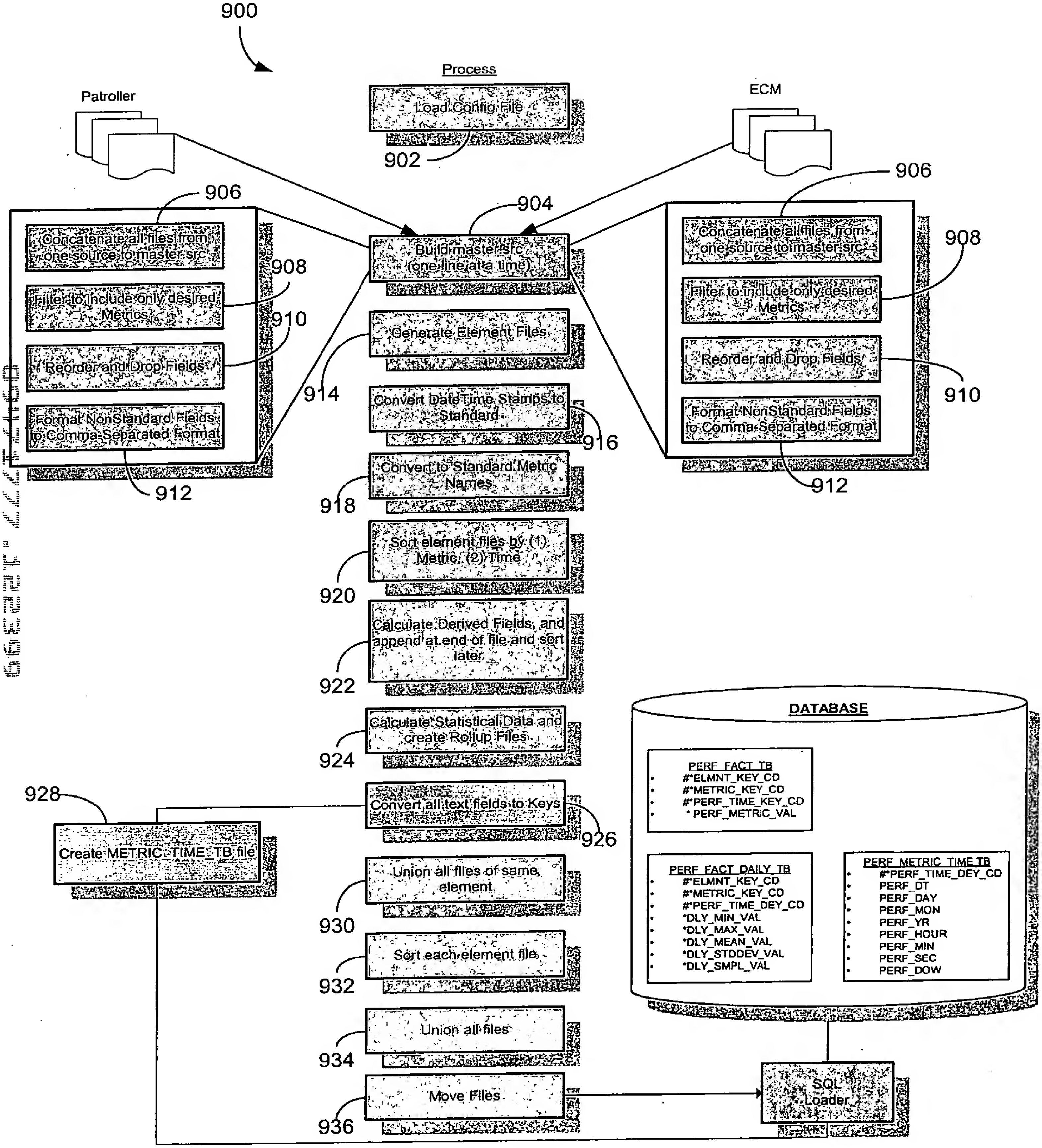


Figure 9

12/22/1999

Fig9.vsd

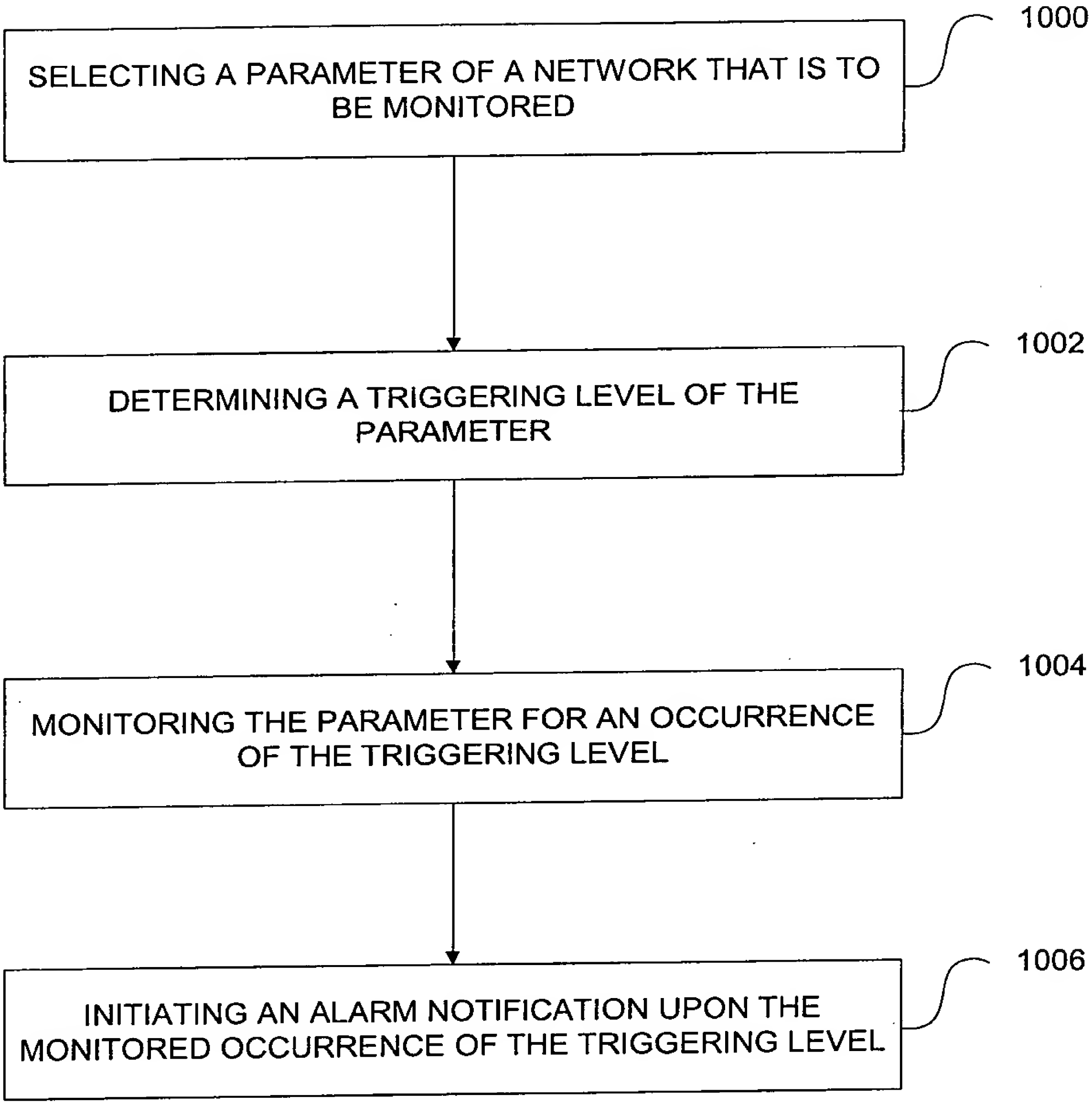

SELECTING A PARAMETER OF A NETWORK THAT IS TO BE MONITORED
1000
DETERMINING A TRIGGERING LEVEL OF THE PARAMETER
1002
MONITORING THE PARAMETER FOR AN OCCURRENCE OF THE TRIGGERING LEVEL
1004
INITIATING AN ALARM NOTIFICATION UPON THE MONITORED OCCURRENCE OF THE TRIGGERING LEVEL
1006

Figure 10

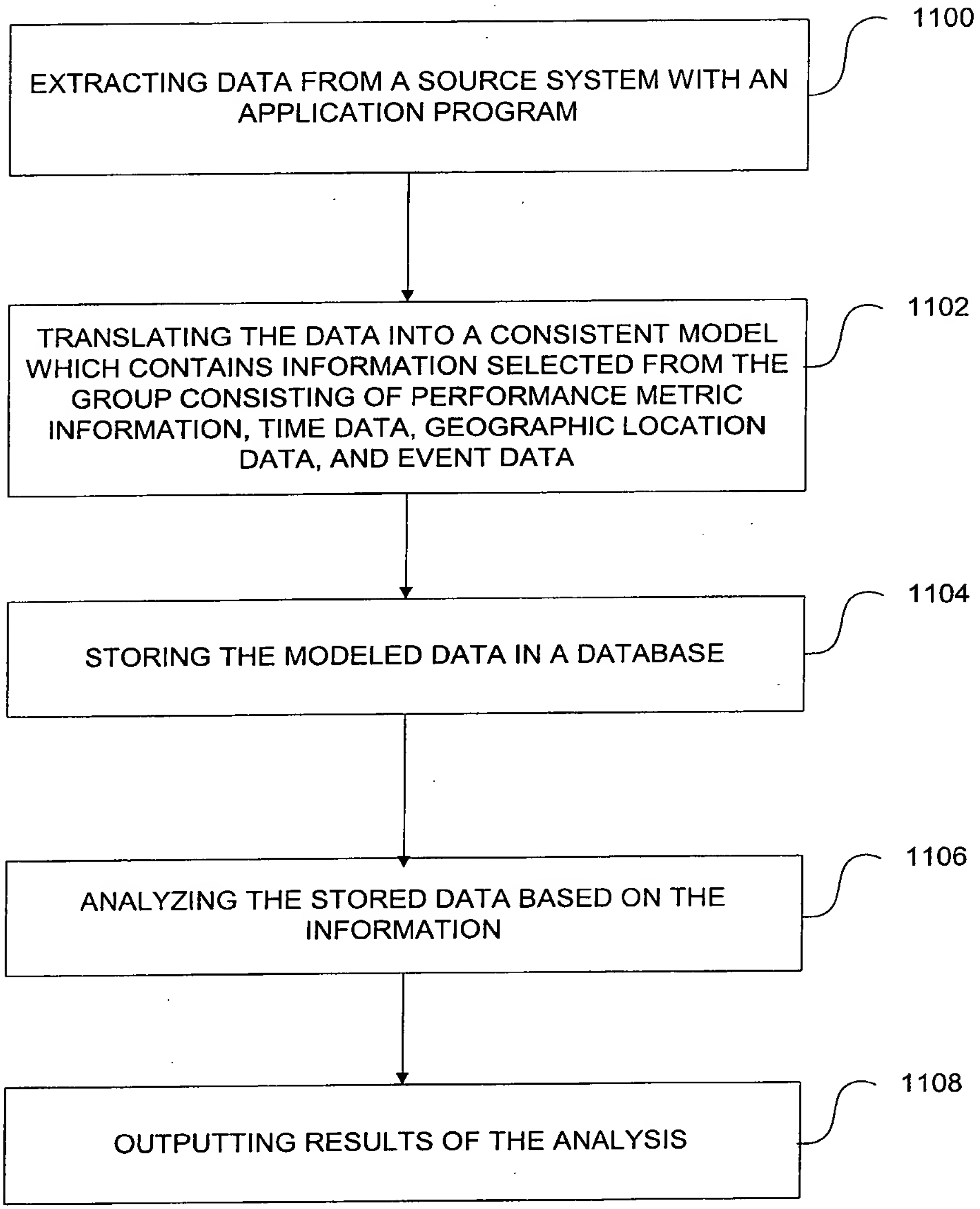

EXTRACTING DATA FROM A SOURCE SYSTEM WITH AN APPLICATION PROGRAM
1100
TRANSLATING THE DATA INTO A CONSISTENT MODEL WHICH CONTAINS INFORMATION SELECTED FROM THE GROUP CONSISTING OF PERFORMANCE METRIC INFORMATION, TIME DATA, GEOGRAPHIC LOCATION DATA, AND EVENT DATA
1102
STORING THE MODELED DATA IN A DATABASE
1104
ANALYZING THE STORED DATA BASED ON THE INFORMATION
1106
OUTPUTTING RESULTS OF THE ANALYSIS
1108

Figure 11

Tablespace	Default Status	Physical Requirements	Related Tablespaces/ Relationship	Datafile	Datafile Size (MB)	Operating System	Database ID	Entity Location
IPSADAT01	On-Line	Data only – No indexes	IPSAIDX/Index tablespace	/files5/oradata/IPSA01/IPSA01ipsadat01.dat	100	HP-UX 10.2	IPSA01	
IPSAIDX	On-Line	Index only	IPSADAT01/data tablespace	/files4/oradata/IPSA01/IPSA01idx01.dbf	20	HP-UX 10.2	IPSA01	
SYSTEM	On-Line		ALL	/files1/oradata/IPSA01/IPSA01system01.dbf	60	HP-UX 10.2	IPSA01	
TEMP01	On-Line		ALL	/files3/oradata/IPSA01/IPSA01tmp01.dbf	20	HP-UX 10.2	IPSA01	
RBS01	On-Line	Contains the 4 rollback segments for the database	ALL	/files2/oradata/IPSA01/IPSA01rbs01.dbf	30	HP-UX 10.2	IPSA01	

Figure 12

Elements	2,000	2,500	5,000	10,000	20,000	50,000
Average Metrics/Element	10	10	10	10	10	10
Poll Frequency	100	100	100	100	100	100
Detail Data Retention	40	40	40	40	40	40
Daily Rollup Data Retention	400	400	400	400	400	400
Detail Records/Day	*2,000,000*	*2,500,000*	*5,000,000*	*10,000,000*	*20,000,000*	*50,000,000*
Total Detail Records	*80,000,000*	*100,000,000*	*200,000,000*	*400,000,000*	*800,000,000*	*2,000,000,000*
Daily Rollup Records/Day	*20,000*	*25,000*	*50,000*	*100,000*	*200,000*	*500,000*
Total Daily Rollup Retained	*8,000,000*	*10,000,000*	*20,000,000*	*40,000,000*	*80,000,000*	*200,000,000*
Total Records	**88,000,000**	**110,000,000**	**220,000,000**	**440,000,000**	**880,000,000**	**2,200,000,000**
Total Space/Table (bytes)						
ELMNT_LOC_TB	*90,000*	*112,500*	*225,000*	*450,000*	*900,000*	*2,250,000*
NETWORK_ELMNT_TB	*204,000*	*255,000*	*510,000*	*1,020,000*	*2,040,000*	*5,100,000*
PERF_FACT_DAILY_TB	*208,000,000*	*260,000,000*	*520,000,000*	*1,040,000,000*	*2,080,000,000*	*5,200,000,000*
PERF_FACT_TB	*3,280,000,000*	*4,100,000,000*	*8,200,000,000*	*16,400,000,000*	*32,800,000,000*	*82,000,000,000*
PERF_METRIC_TIME_TB	*1,285,632,000*	*1,285,632,000*	*1,285,632,000*	*1,285,632,000*	*1,285,632,000*	*1,285,632,000*
PERF_METRIC_TB	*1,638*	*1,638*	*1,638*	*1,638*	*1,638*	*1,638*
Total Space Needed (bytes)	**4,773,927,638**	**5,646,001,138**	**10,006,368,638**	**18,727,103,638**	**36,168,573,638**	**88,492,983,638**
Total Space Needed (MB)	**4,662.04**	**5,513.67**	**9,771.84**	**18,288.19**	**35,320.87**	**86,418.93**

Figure 13

Table	Column	Data Type	Column Size (bytes)	Row Size (bytes)	Space Used/Row (bytes)
ELMNT_LOC_TB	ELMNT_LOC_CD	Varchar2(5)	6		
	ELMNT_CITY_NM	Varchar2(30)	31		
	ELMNT_STATE_DBRV	Varchar2(2)	3	43	45
EVENT_CD_TB	EVENT_CD				
	EVENT_STRING				
	EVENT_AVAIL_TYPE				
	EVENT_PAIR			3	11
EVENTS_FACT_TB	ELMNT_KEY_CD	Number(10)	7		
	PERF_TIME_KEY_CD	Number(10)	7		
	EVENT_CD				
	EVENT_DURATION				
	EVENT_SEVERITY				
	EVENT_CLASS			17	19
NETWORK_ELMNT_TB	ELMNT_KEY_CD	Number(10)	7		
	ELMNT_NM	Varchar2(20)	21		
	ELMNT_TYPE_CD	Varchar2(2)	3		
	ELMNT_VNDR_NM	Varchar2(30)	31		
	ELMNT_VNDR_MDL	Varchar2(20)	21		
	ELMNT_VAL_DT	Date	8		
	ELMNT_LOC_CD	Varchar2(5)	6	100	102
PERF_FACT_DAILY_TB	ELMNT_KEY_CD	Number(10)	7		
	METRIC_KEY_CD	Number(10)	7		
	PERF_TIME_KEY_CD	Number(10)	7		
	DLY_MIN_AMT				
	DLY_MAX_AMT				
	DLY_MEAN_AMT				
	DLY_MEDIAN_AMT				
	DLY_STDDEV_AMT			24	26
PERF_FACT_TB	ELMNT_KEY_CD	Number(10)	7		
	PERF_TIME_KEY_CD	Number(10)	7		
	METRIC_KEY_CD	Number(10)	7		
	PERF_METRIC_VAL	Number(25,5)	15	39	41
PERF_METRIC_TB	METRIC_KEY_CD	Number(10)	7		
	METRIC_NM	Varchar2(30)	31		
	METRIC_SRC	Varchar2(20)	21		
	METRIC_INS	Varchar2(30)	31		
	METRIC_SUB_INS	Varchar2(30)	31	124	126
PERF_METRIC_TIME_TB	PERF_TIME_KEY_CD	Number(10)	7		
	PERF_DT	Date	8		
	PERF_DAY	Number(2)	2		
	PERF_MON	Number(2)	2		
	PERF_YR	Number(4)	3		
	PERF_HOUR	Number(2)	2		
	PERF_MIN	Number(2)	2		
	PERF_SEC	Number(2)	2		
	PERF_DOW	Varchar2(9)	10	370	372

Figure 14

	Time to Load (Direct)	Time to Load (Conventional)	Number of Rows Loaded	Amount of data(MB)	Comments
Empty Table	00:04:32	00:30:12	1,048,576	35	
1 mil rows in table	00:06:29	00:32:57	1,048,576	35	Index was 10 MB larger for conventional load. This suggest some degree of fragmentation occurred during load which would require weekly index maintenance
Empty Table	00:14:49	01:31:47	3,145,728	106	
2 mil rows in table	00:08:49	00:35:49	1,048,576	35	Index was 30 MB larger for conventional load. This suggest some degree of fragmentation occurred during load which would require weekly index maintenance
Empty Table	00:30:10	03:05:24	6,291,456	212	
3 mil rows in table	00:22:52	01:33:15	3,145,728	106	Had to increase the size of the index tablespace in order for the new index and the old index to merge at the end of direct load.

Figure 15

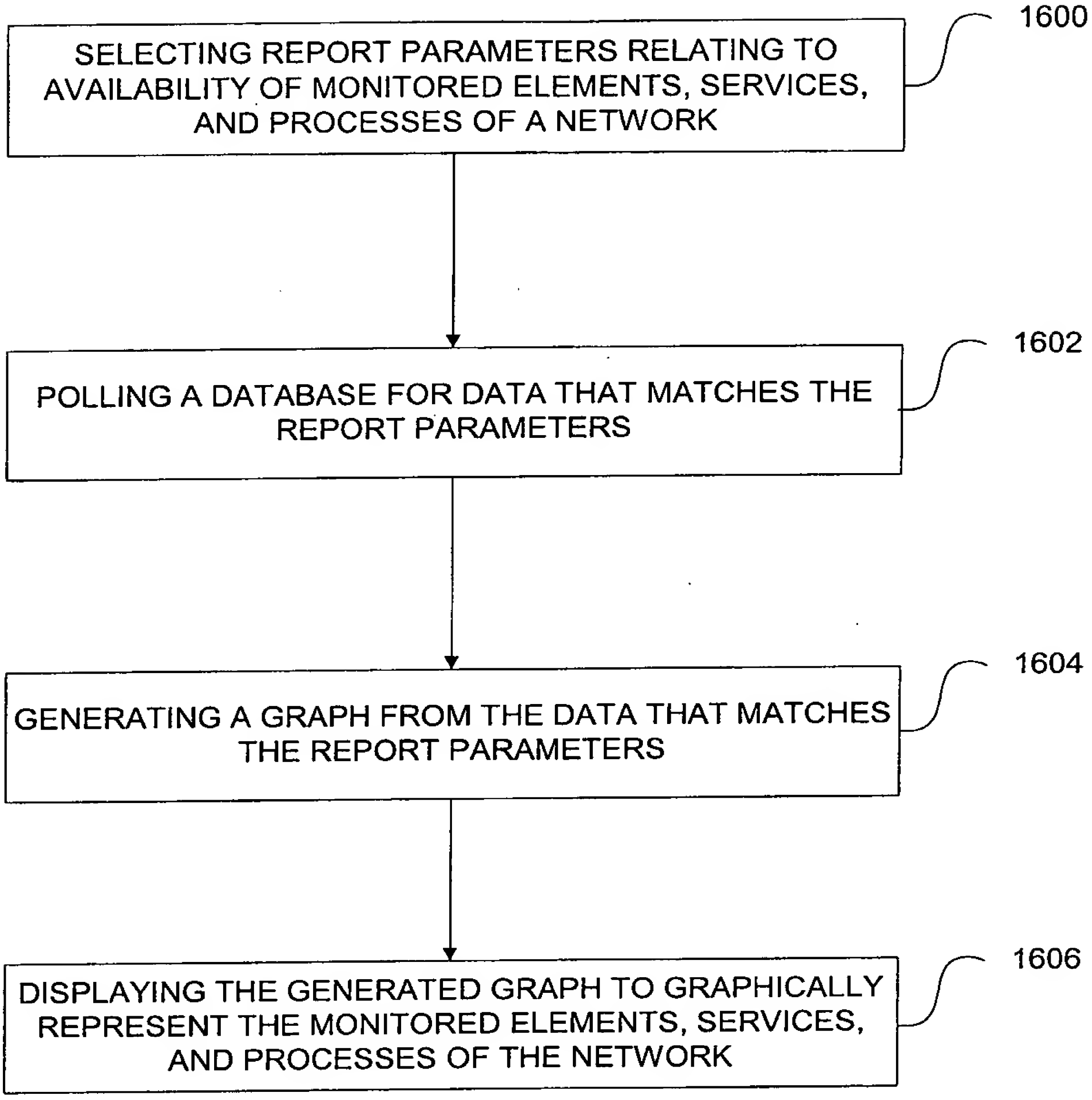
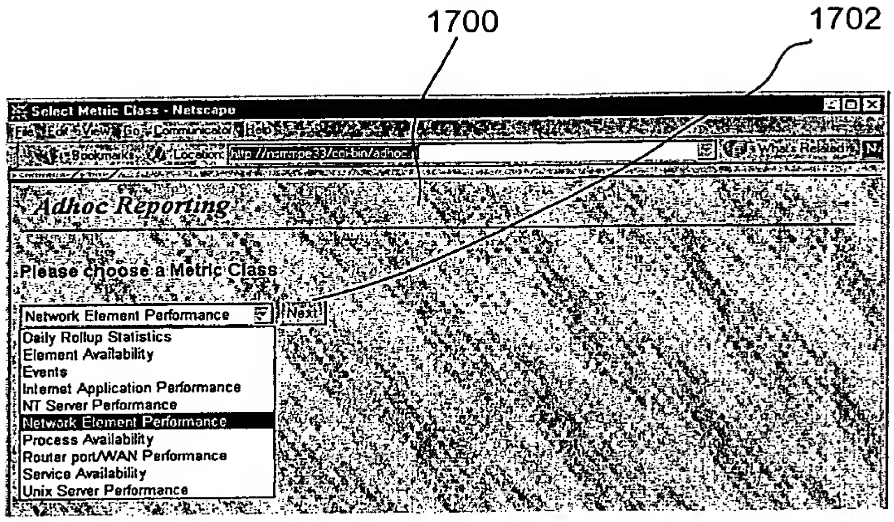

SELECTING REPORT PARAMETERS RELATING TO AVAILABILITY OF MONITORED ELEMENTS, SERVICES, AND PROCESSES OF A NETWORK
1600
POLLING A DATABASE FOR DATA THAT MATCHES THE REPORT PARAMETERS
1602
GENERATING A GRAPH FROM THE DATA THAT MATCHES THE REPORT PARAMETERS
1604
DISPLAYING THE GENERATED GRAPH TO GRAPHICALLY REPRESENT THE MONITORED ELEMENTS, SERVICES, AND PROCESSES OF THE NETWORK
1606

Figure 16



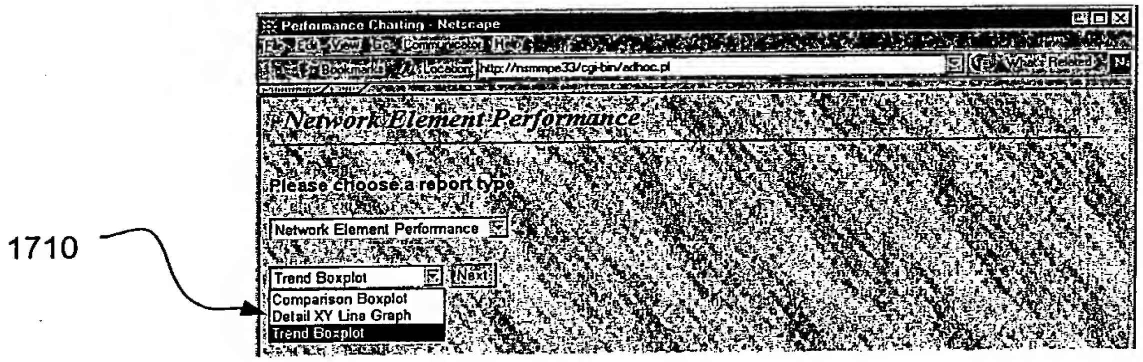
Adhoc Reporting

Please choose a Metric Class

Network Element Performance

- Daily Rollup Statistics
- Element Availability
- Events
- Internet Application Performance
- NT Server Performance
- Network Element Performance
- Process Availability
- Router port/WAN Performance
- Service Availability
- Unix Server Performance

Figure 17A



Network Element Performance

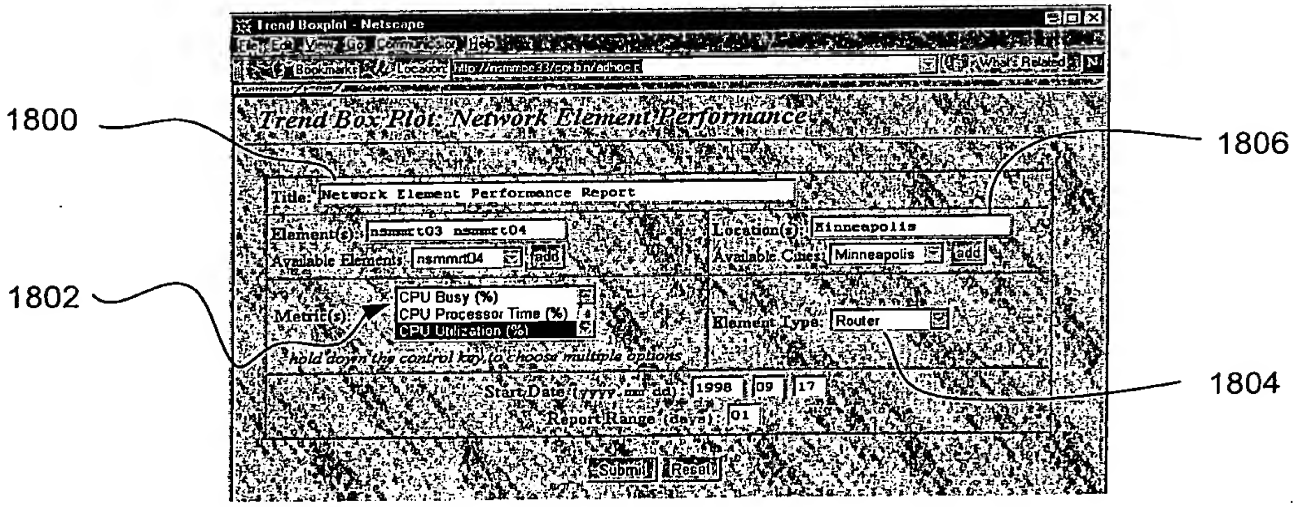
Please choose a report type

Network Element Performance

Trend Boxplot

- Comparison Boxplot
- Detail XY Line Graph
- Trend Boxplot

Figure 17B



Trend Box Plot: Network Element Performance

Title: Network Element Performance Report

Element(s): nsmmrt03 nsmmrt04

Available Elements: nsmmrt04

Location(s): Minneapolis

Available Cities: Minneapolis

Metric(s): CPU Busy (%) / CPU Processor Time (%) / CPU Utilization (%)

hold down the control key to choose multiple options

Element Type: Router

Start Date (yyyy mm dd): 1998 09 17

Report Range (days): 01

Figure 18

Figure 19

Notes

1. The Object and Report columns list all the daily batch report types required
2. The total number of daily batch reports is listed in the column Batch Report Qty
3. Each batch report is one of seven Generic Report Types detailed on sheet 2
4. Data collection requirements driven by each report are given for Snmp and Patrol metrics
5. The reports marked with and asterisk (*) are optional for Phase 2

Object	Report	Generic Report type	Graph type	y axis units	y axis range	x axis units	x axis range	Batch report qty	Batch report requirements	Naming standard: <Description Units> Database variable name y axis metric name	SNMP metrics	Patrol metrics	Patrol Collector	Max/Min Precision
Router, Cisco 7500	CPU Utilization Daily Detail	Daily detail	x-y line	%	0-100	hours	24	2	Two router reports daily	CpuBusy1Percent	busyPer	N/A	N/A	
	CPU Utilization Daily Comparison	Daily comparison	boxplot	%	0-100	nodes	all routers	1	One report daily, comparing two routers	CpuBusy1Percent	busyPer	N/A	N/A	
	CPU Utilization Trend	Monthly trend	boxplot	%	0-100	days	30	2	Two router trend reports daily	CpuBusy1Percent	busyPer	N/A	N/A	
	Router Exceptions	Daily exception spectrum	spectrum	elements	all elements	hours	24	1	One report daily, showing exceptions for two routers	N/A	N/A	N/A	N/A	
													N/A	
Router Interfaces / WAN	Interface Utilization Daily Detail	Daily detail, n sub-objects	x-y line	%	0-100	hours	24	2	Two router reports daily, each showing two interfaces	InterfaceUtilization1Percent	ifInOctects, ifOutOctets, ifSpeed	N/A	N/A	
	Interface Utilization Trend	Monthly trend	boxplot	%	0-100	days	30	4	Four interface reports daily	InterfaceUtilization1Percent	ifInOctects, ifOutOctets, ifSpeed	N/A	N/A	
	Interface Utilization Daily Detail	Daily detail, n sub-objects	x-y line	packets/sec	0-ifSpeed	hours	24	2	Two router reports daily, each showing two interfaces	InterfaceUtilization1BPS	ifInOctets, ifOutOctets, ifSpeed	N/A	N/A	
	Interface Utilization Trend	Monthly trend	boxplot	packets/sec	0-ifSpeed	days	30	4	Four interface trend reports daily	InterfaceUtilization1BPS	ifInOctets, ifOutOctets, ifSpeed	N/A	N/A	
	Response Time Daily Detail*	Daily detail/n sub-objects	x-y line	seconds	0-ifSpeed	hours	24	0		N/A	N/A	N/A	N/A	
	Response Time Trend*	Monthly trend	boxplot	seconds	0-ifSpeed	days	30	0		N/A	N/A	N/A	N/A	
Unix servers	CPU Utilization Daily Detail	Daily detail	x-y line	%	0-100	hours	24	1	One server report daily	CpuUtilization1Percent	N/A	CPUCpuUtil	VMColl	0/100 - #.###
	CPU Utilization Trend	Monthly trend	boxplot	%	0-100	days	30	1	One server report daily	CpuUtilization1Percent	N/A	CPUCpuUtil	VMColl	0/100 - #.###
	Memory Utilization Daily Detail	Daily detail	x-y line	bytes	0-100	hours	24	1	One server report daily	MemoryFree1Pages	N/A	MEMFreeMem	VMColl	0/+ - #.###
	Memory Utilization Trend	Monthly trend	boxplot	bytes	0-100	days	30	1	One server report daily	MemoryFree1Pages	N/A	MEMFreeMem	VMColl	0/+ - #.###
	Network I/O Daily Detail	Daily detail	x-y line	%	0-100	hours	24	1	One server report daily	NetworkTraffic1PPS	N/A	NETPacketsIn, NETPacketsOut	NETColl	0/+ - #.###
	Network I/O Trend	Monthly trend	boxplot	%	0-100	days	30	1	One server report daily	NetworkTraffic1PPS	N/A	NETPacketsIn, NETPacketsOut	NETColl	0/+ - #.###
	Disk Percent Busy Daily Detail	Daily detail	x-y line	%	0-100	hours	24	1	One server report daily, showing two disks	DiskBusy1Percent	N/A	DSKPercentBusy		0/100 - #.###
	Disk Percent Busy Trend	Monthly trend	boxplot	%	0-100	days	30	1	One server report daily, showing two disks	DiskBusy1Percent	N/A	DSKPercentBusy		0/100 - #.###
	Unix Exceptions	Daily exception spectrum	spectrum	elements	all elements	hours	24	1	One report daily, showing exceptions from two servers	N/A	N/A	N/A	N/A	
NT servers	CPU Utilization Daily Detail	Daily detail	x-y line	%	0-100	hours	24	1	One server report daily	CpuProcessorTime1Percent		CPUprcrProcessorTimePercent	CPUProcessorColl	0/100 - #.###
	CPU Utilization Trend	Monthly trend	boxplot	%	0-100	days	30	1	One server report daily	CpuProcessorTime1Percent		CPUprcrProcessorTimePercent	CPUProcessorColl	0/100 - #.###
	Memory Utilization Daily Detail	Daily detail	x-y line	% or bytes	0-100	hours	24	1	One server report daily	MemoryFree1Mbytes		MEMmemAvailableBytes	MEMMemoryColl	0/+ - #.###
	Memory Utilization Trend	Monthly trend	boxplot	% or bytes	0-100	days	30	1	One server report daily	MemoryFree1Mbytes		MEMmemAvailableBytes	MEMMemoryColl	0/+ - #.###
	Network I/O Daily Detail	Daily detail	x-y line	packets/sec	0-100	hours	24	1	One server report daily	NetworkTraffic1PPS		NETniPcktsPerSec	NETNetworkInterfaceColl	0/+ - #.###
	Network I/O Trend	Monthly trend	boxplot	packets/sec	0-100	days	30	1	One server report daily	NetworkTraffic1PPS		NETniPcktsPerSec	NETNetworkInterfaceColl	0/+ - #.###
	Disk Percent Busy Daily Detail	Daily detail	x-y line	%	0-100	hours	24	1	One server report daily, showing two disks	DiskTime1Percent		PDpdDiskTimePercent	PDPhysicalDiskColl	0/100 - #.###
	Disk Percent Busy Trend	Monthly trend	boxplot	%	0-100	days	30	1	One server report daily, showing two disks	DiskTime1Percent		PDpdDiskTimePercent	PDPhysicalDiskColl	0/100 - #.###
	NT Exceptions	Daily exception spectrum	spectrum	elements	all elements	hours	24	1	One report daily, showing exceptions from two servers	N/A	N/A	N/A	N/A	N/A
Network Elements (all hardware)	Network Availability Bar Chart	Daily availability bar chart	bar	%	0-100	elements	all elements	1	One report showing all elements	N/A	N/A	N/A	N/A	N/A
	Network Availability Spectrum*	Daily availability spectrum	spectrum	elements	all elements	hours	24	0	One report showing all elements	N/A	N/A	N/A	N/A	N/A
Internet Services (fault mgmt)	Process Availability Bar Chart	Daily availability bar chart	bar	%	0-100	processes	all processes	1	One report showing 5 ISP apps	N/A	N/A	N/A	N/A	N/A
	Process Availability Spectrum*	Daily availability spectrum	spectrum	processes	all processes	hours	24	0	One report showing 5 ISP apps	N/A	N/A	N/A	N/A	N/A
	Service Availability Bar Chart	Daily availability bar chart	bar	%	0-100	services	all services	1	One report showing 5 ISP apps	N/A	N/A	N/A	N/A	N/A
	Service Availability Spectrum*	Daily availability spectrum	spectrum	services	all services	hours	24	0	One report showing 5 ISP apps	N/A	N/A	N/A	N/A	N/A
All objects (fault mgmt)	Daily Exception Report	Textual list of all events	text	N/A	N/A	N/A	N/A	1	One report daily showing all events	N/A	N/A	N/A	N/A	N/A
Internet Services (performance mgmt)*	FTP Response Time Daily Detail*	Daily detail	x-y line	seconds	0-max value			0	One report daily	FtpResponseTime1Seconds	N/A	ftpResponseTime	ftpMonitor	
	FTP Response Time Trend*	Monthly trend	boxplot	seconds	0-max value			0	One report daily	FtpResponseTime1Seconds	N/A	ftpResponseTime	ftpMonitor	
	SMTP Response Time Daily Detail*	Daily detail	x-y line	seconds	0-max value			0	One report daily	SmtpResponseTime1Seconds	N/A	smtpResponseTime	smtpMonitor	
	SMTP Response Time Trend*	Monthly trend	boxplot	seconds	0-max value			0	One report daily	SmtpResponseTime1Seconds	N/A	smtpResponseTime	smtpMonitor	
	NNTP Response Time Daily Detail*	Daily detail	x-y line	seconds	0-max value			0	One report daily	NntpResponseTime1Seconds	N/A	nntpResponseTime	nntpMonitor	
	NNTP Response Time Trend*	Monthly trend	boxplot	seconds	0-max value			0	One report daily	NntpResponseTime1Seconds	N/A	nntpResponseTime	nntpMonitor	
	HTTP Response Time Daily Detail*	Daily detail	x-y line	seconds	0-max value			0	One report daily	HttpResponseTime1Seconds	N/A	httpResponseTime	httpMonitor	
	HTTP Response Time Trend*	Monthly trend	boxplot	seconds	0-max value			0	One report daily	HttpResponseTime1Seconds	N/A	httpResponseTime	httpMonitor	
							Total	40						

Figur 20

Notes

1. "Object" may refer to an element, process, or service.

Generic Report Type	Graph Type	Description	Scope	X-axis Units	X-axis Range	Y-axis Units
Daily Detail	XY line graph	Shows all samples of a single metric from a single object over one day	1 object, 1 metric	Hours & minutes	24 hours	Metric value
Daily Detail, N Sub-objects	XY line graph	Shows all samples of multiple metrics from a single object over one day	n objects, 1 metric	Hours & minutes	24 hours	Metric value
Daily Object Comparison	Boxplot	Compares distributions of a single metric across multiple objects for one day	n objects, 1 metric	Objects	n objects	Metric value
Monthly Trend	Boxplot	Shows changes in distributions of a single metric over one month	1 object, 1 metric	Days	30 days	Metric value
Daily Availability Bar Chart	Bar graph	Compares percent availability for multiple services or objects for one day	n objects, 1 availability	Objects	n objects	Percent
Daily Exception Spectrum	Spectrum	Shows exceptions for multiple objects as points over time.	n objects, n exceptions	Hours & minutes	24 hours	Objects
Daily Exception Text Report	Text list	Text list of all events over one day, with columns for date-time, event string, code, and severity.	n objects, n exceptions	N/A	N/A	N/A
Daily Availability Spectrum*	Spectrum	Shows up/down status as a continuous color-coded lineover time: red=down, green=up.	n objects, 1 availability	Hours & minutes	24 hours	Objects

Figure 21

1st Menu choice	2nd menu choice	3rd menu choice	4th menu choice	5th menu choice	6th menu choice	7th menu choice	Metrics(s)
Select Metric Class	Select Report Type	Select Element(s)	Select Location(s)	Select start date	# of days		
default	N/A	all	all	yesterday	1		
Element Availability	Percent Availability Bar Graph	<element name>	<element location>	<start date>	<days>		N/A
Service Availability	Percent Availability Bar Graph	<element name>	<element location>	<start date>	<days>	<service>	N/A
Process Availability	Percent Availability Bar Graph	<element name>	<element location>	<start date>	<days>	<process>	N/A
Events	Exception Spectrum	<element name>	<element location>	<start date>	<days>		N/A
Network Element Performance	Detail XY Line Graph	<element name>	<element location>	<start date>	<days>		Cpu Utilization (busyper)
	Trend Boxplot	<element name>	<element location>	<start date>	<days>		Cpu Utilization (busyper)
	Comparison Boxplot	<element name>	<element location>	<start date>	<days>		Cpu Utilization (busyper)
Router port / WAN Performance	Detail XY Line Graph	<element name>	<element location>	<start date>	<days>	<instance>	Interface Utilization (ifIn/OutOctects)
	Trend Boxplot	<element name>	<element location>	<start date>	<days>	<instance>	Interface Utilization (ifIn/OutOctects)
	Comparison Boxplot	<element name>	<element location>	<start date>	<days>	<instance>	Interface Utilization (ifIn/OutOctects)
Unix Server Performance	Detail XY Line Graph	<element name>	<element location>	<start date>	<days>	<instance>	Cpu Utilization, Memory Utilization, Network Utilization, Disk Percent Busy
	Trend Boxplot	<element name>	<element location>	<start date>	<days>	<instance>	Cpu Utilization, Memory Utilization, Network Utilization, Disk Percent Busy
	Comparison Boxplot	<element name>	<element location>	<start date>	<days>	<instance>	Cpu Utilization, Memory Utilization, Network Utilization, Disk Percent Busy
NT Server Performance	Detail XY Line Graph	<element name>	<element location>	<start date>	<days>	<instance>	Cpu Utilization, Memory Utilization, Network Utilization, Disk Percent Busy
	Trend Boxplot	<element name>	<element location>	<start date>	<days>	<instance>	Cpu Utilization, Memory Utilization, Network Utilization, Disk Percent Busy
	Comparison Boxplot	<element name>	<element location>	<start date>	<days>	<instance>	Cpu Utilization, Memory Utilization, Network Utilization, Disk Percent Busy
Internet Application Performance*	Detail XY Line Graph	<element name>	<element location>	<start date>	<days>		Response Time
	Trend Boxplot	<element name>	<element location>	<start date>	<days>		Response Time
	Comparison Boxplot	<element name>	<element location>	<start date>	<days>		Response Time
Daily Rollup Statistics	Detail XY Line Graph	<element name>	<element location>	<start date>	<days>	<metric name>	<rollup statistic> (min, max, mean, std dev, sample size)

SNMP/PATROL METRICS	DESCRIPTION	PLATFORM	UNITS	
busyPer	Provides the percent of CPU usage over the first 5 second period in the scheduler.	Router	percentage	
ifInOctets	The total number of octets received on the interface, including framing characters.	Router Interface	octets	
ifOutOctects	The total number of octets transmitted out of the interface, including framing characters.	Router Interface	octets	
ifSpeed	An estimate of the interface's current bandwidth in bits per second. For interfaces which do not vary in bandwidth or for those where no accurate estimation can be made, this object should contain the nominal bandwidth.	Router Interface	bits per second	
CPUCpuUtil	Displays the percentage of CPU utilization.	UNIX	percentage	
MEMFreeMem	Displays the number of pages of memory available.	UNIX	pages	
NETPacketsIn	Displays the total number of incoming packets within a sample interval.	UNIX	packets	
NETPacketsOut	Displays the total number of outgoing packets within a sample interval.	UNIX	packets	
DSKPercentBusy	Displays the percentage of time that the device is busy servicing a transfer request.	UNIX	percentage	
CPUprcrProcessorTimePercent	Displays a percentage of the elapsed time that a processor is busy executing a non-idle thread.	NT	percentage	
MEMmemAvailableBytes	Displays the size of the virtual memory currently on the zeroed, free, and standby memory lists.	NT	megabytes	
NETniPcktsPerSec	Displays the rate that the packets are sent and received on the network.	NT	packets per second	
PDpdDiskTimePercent	Displays the percentage of elapsed time that the disk spends servicing read or write requests.	NT	percentage	
	Figure 22			

Detail XY Line Graph

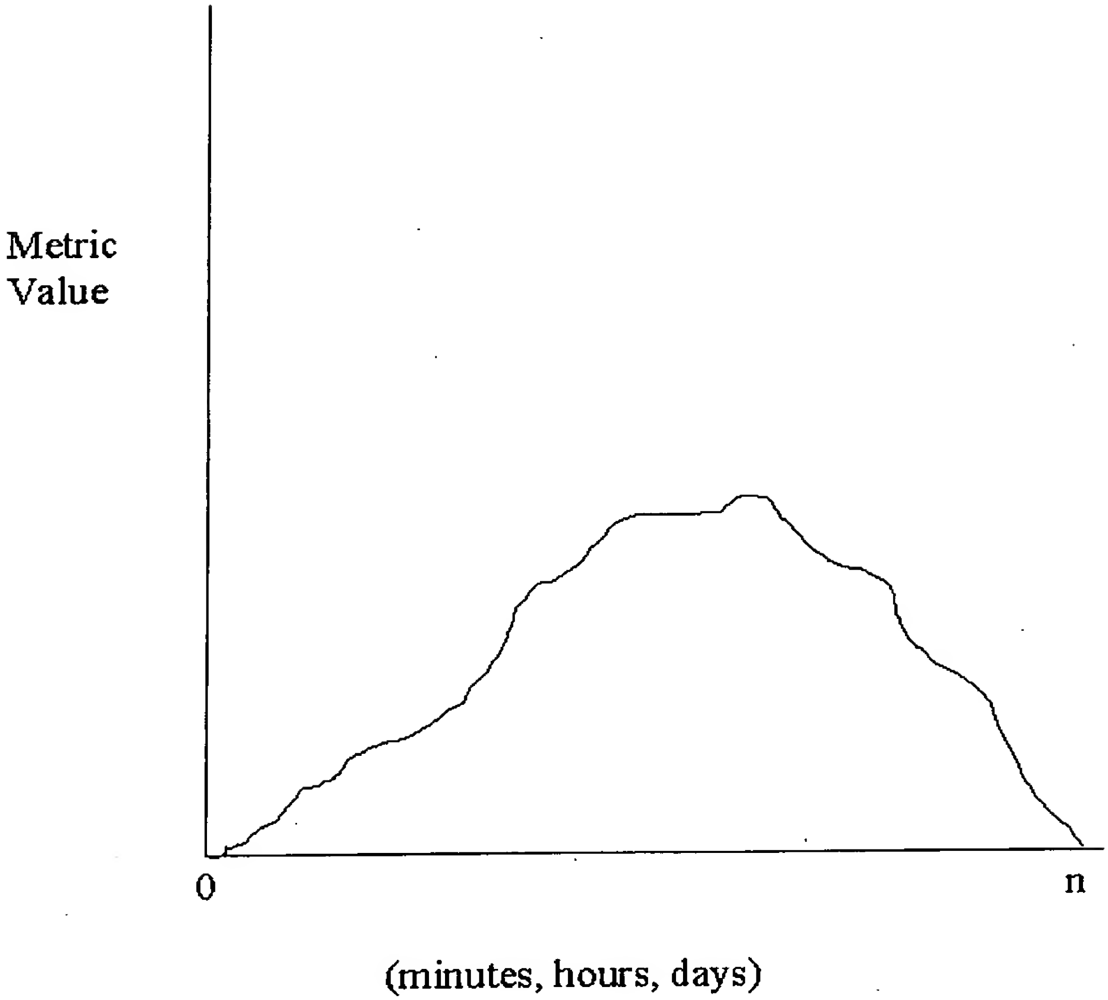
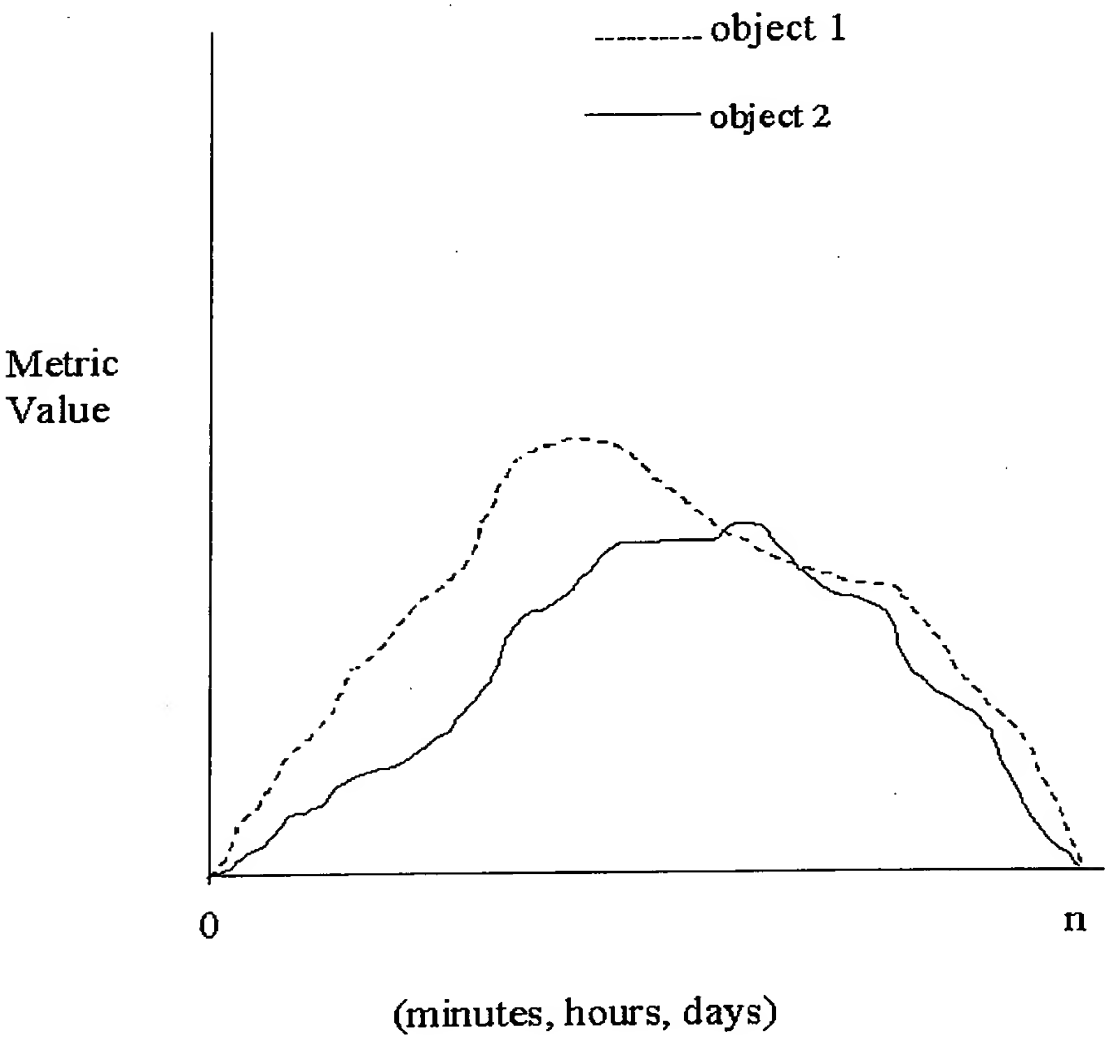


Figure 23



Detail XY Line Graph, n objects

Figure 24

Comparison Boxplot

Representing samples taken from:

mm/dd/yyyy to mm/dd/yyyy

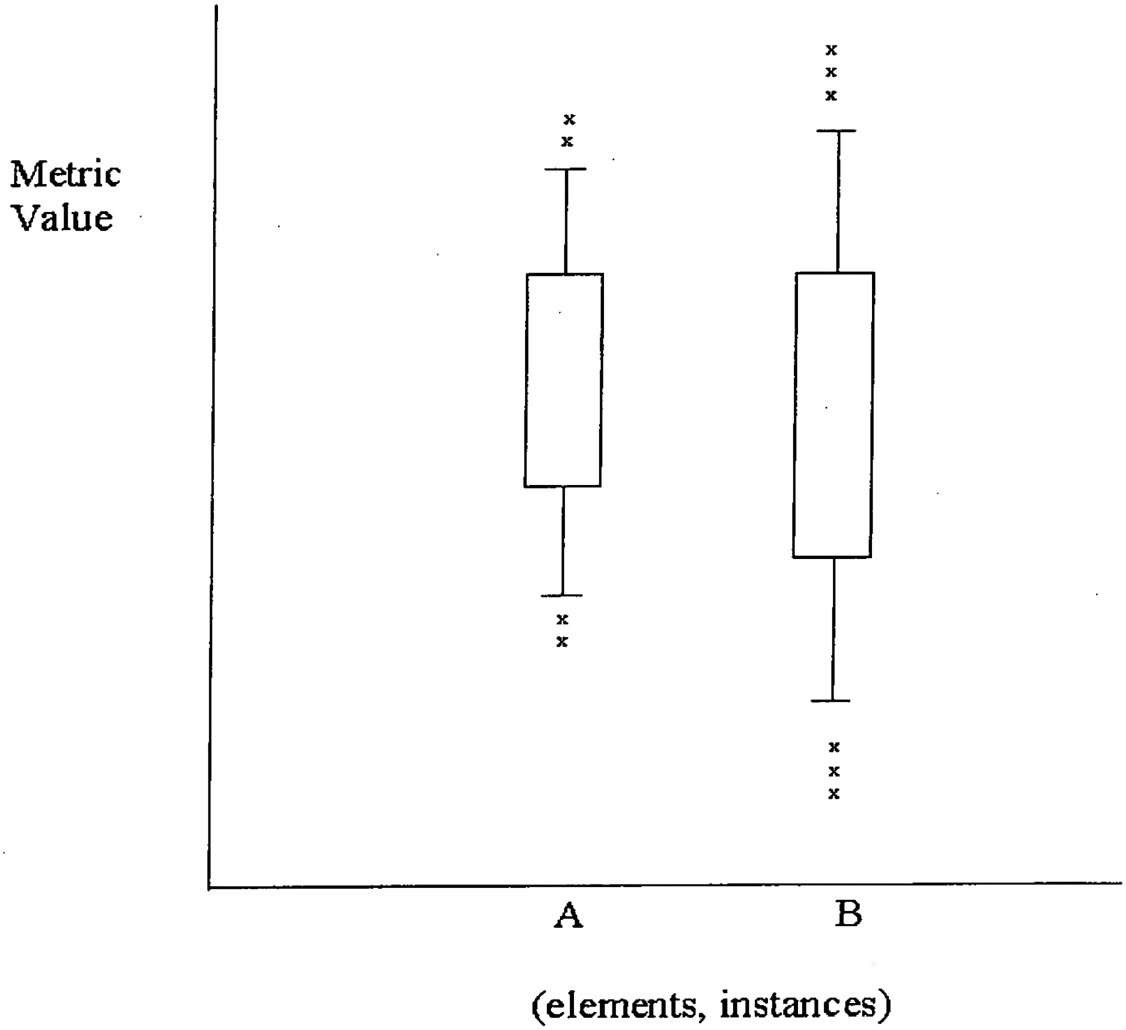


Figure 25

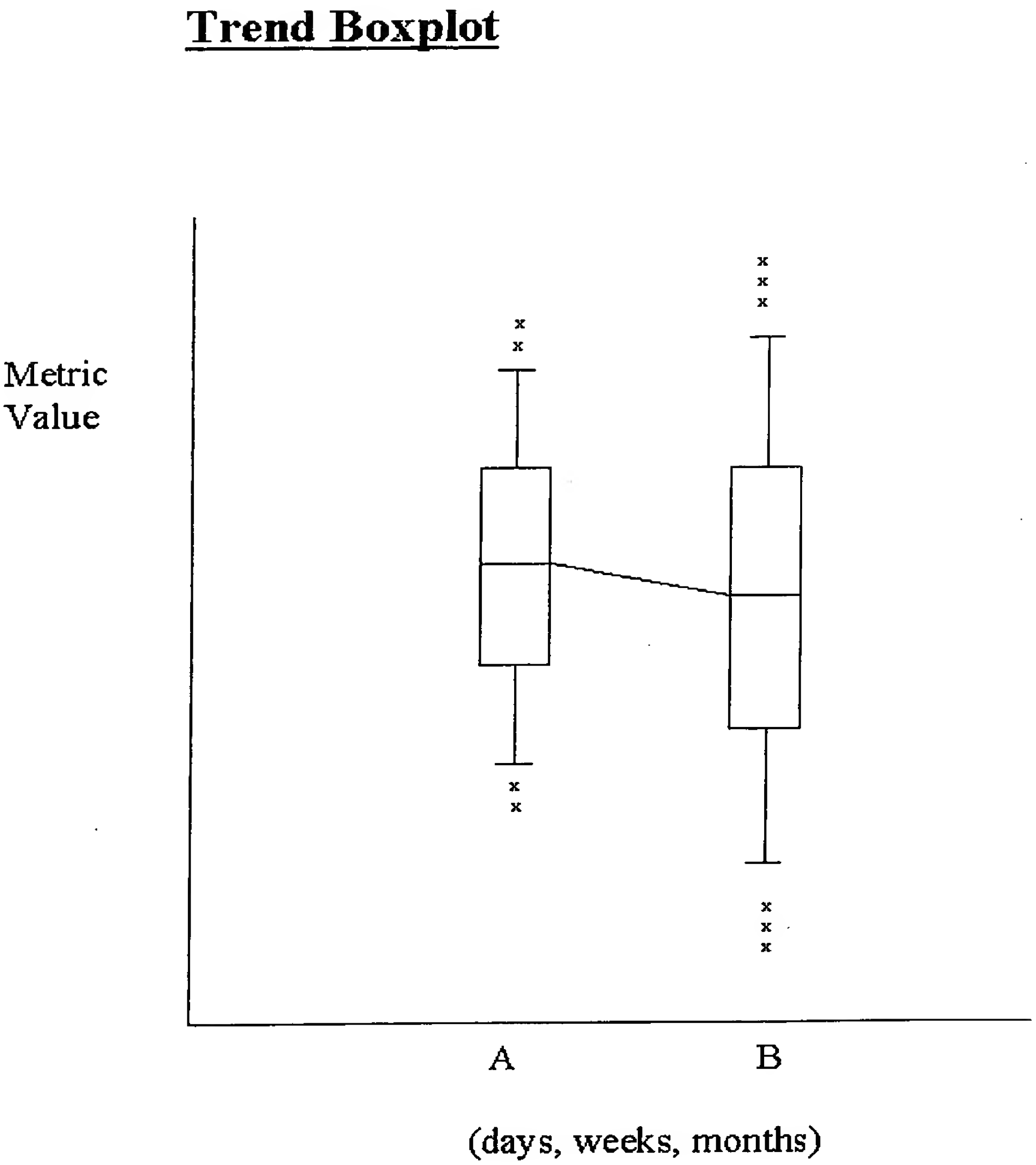

Trend Boxplot
Metric Value
x
x
x
x
x
x
x
x
x
x
A
B
(days, weeks, months)

Figure 26

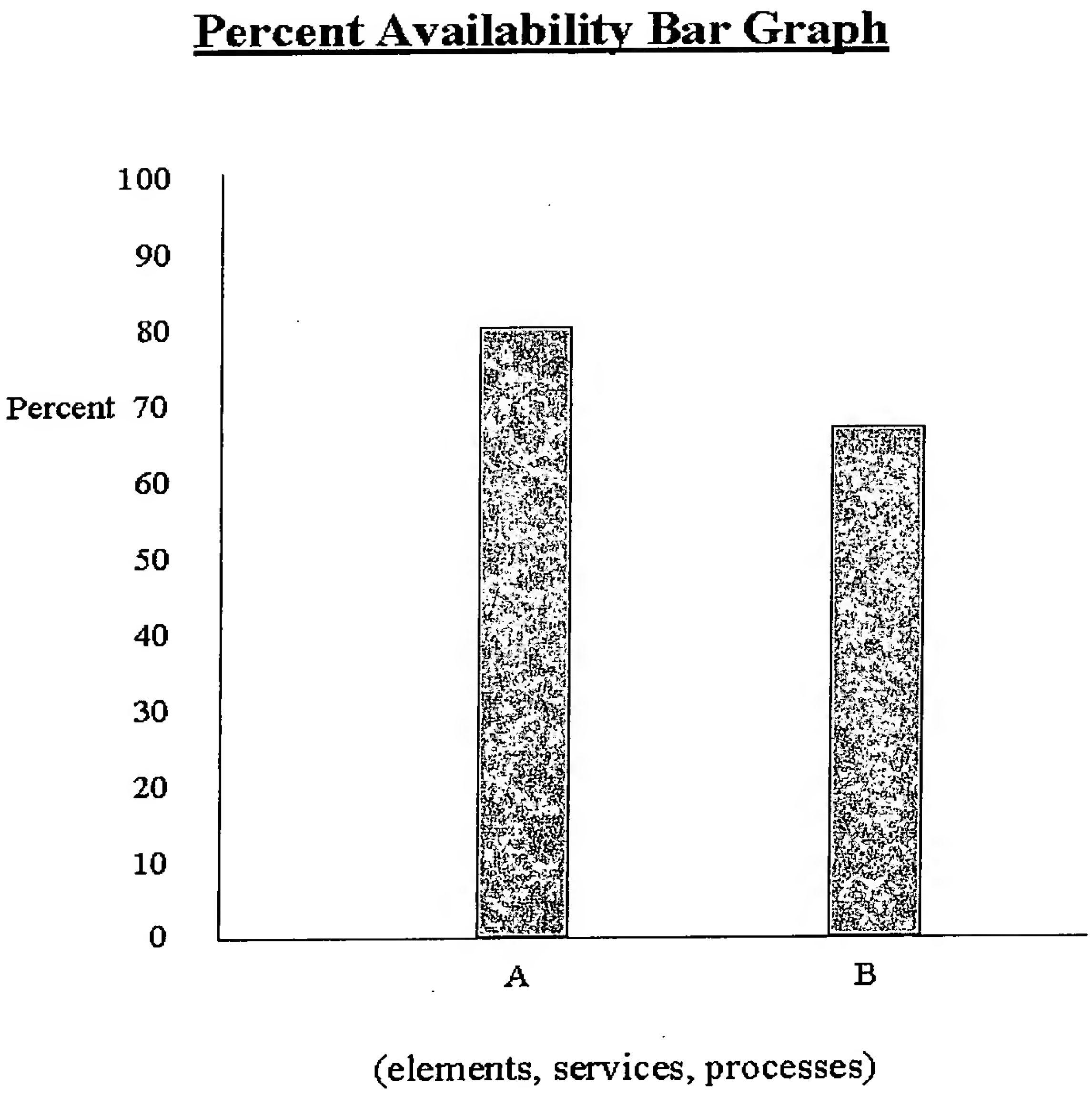

Percent Availability Bar Graph
100
90
80
Percent
70
60
50
40
30
20
10
0
A
B
(elements, services, processes)

Figure 27

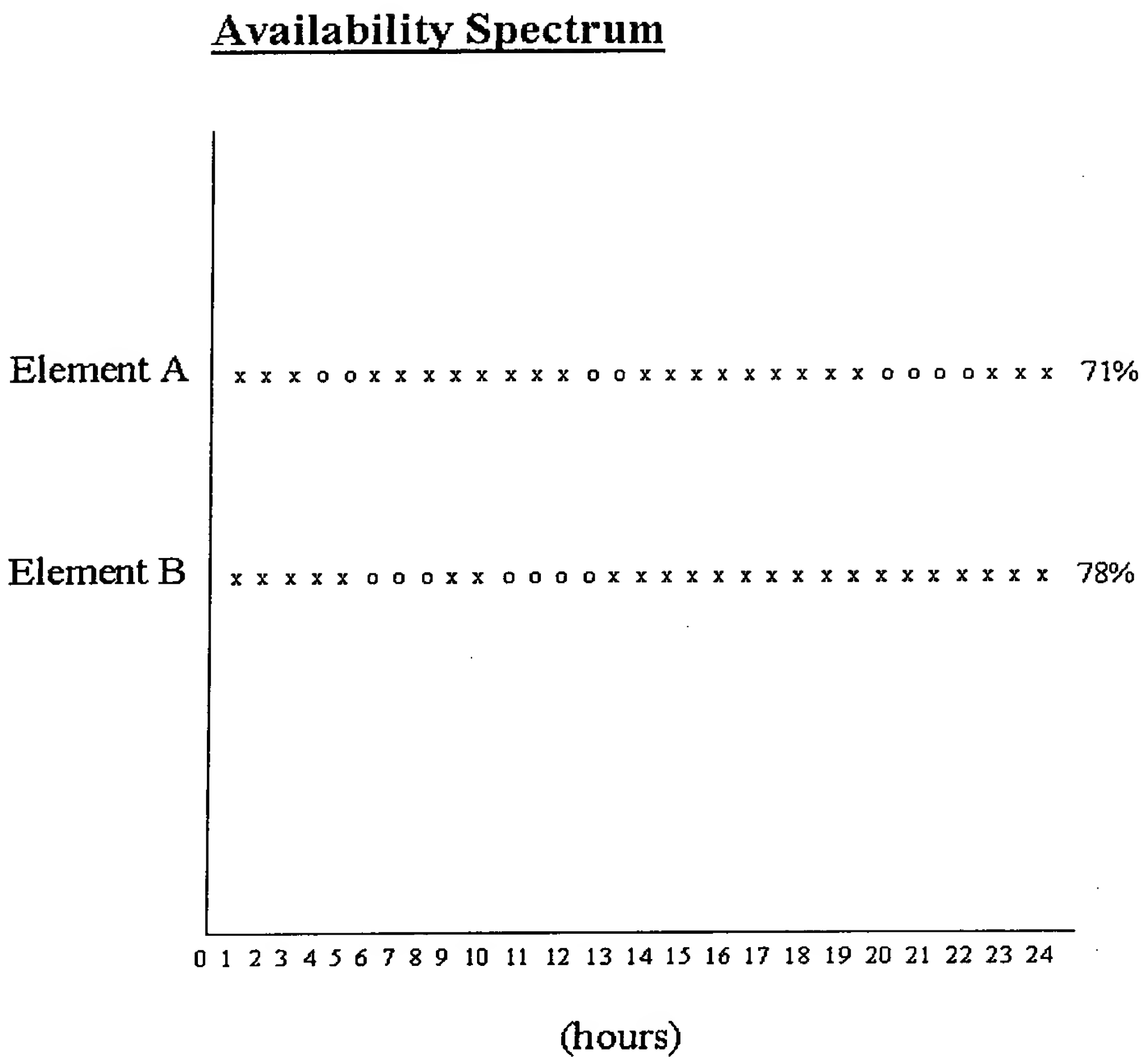

Availability Spectrum
Element A
x x x o o x x x x x x x x o o x x x x x x x x x o o o o x x x
71%
Element B
x x x x x o o o x x o o o o x x x x x x x x x x x x x x x x x
78%
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
(hours)

Figure 28

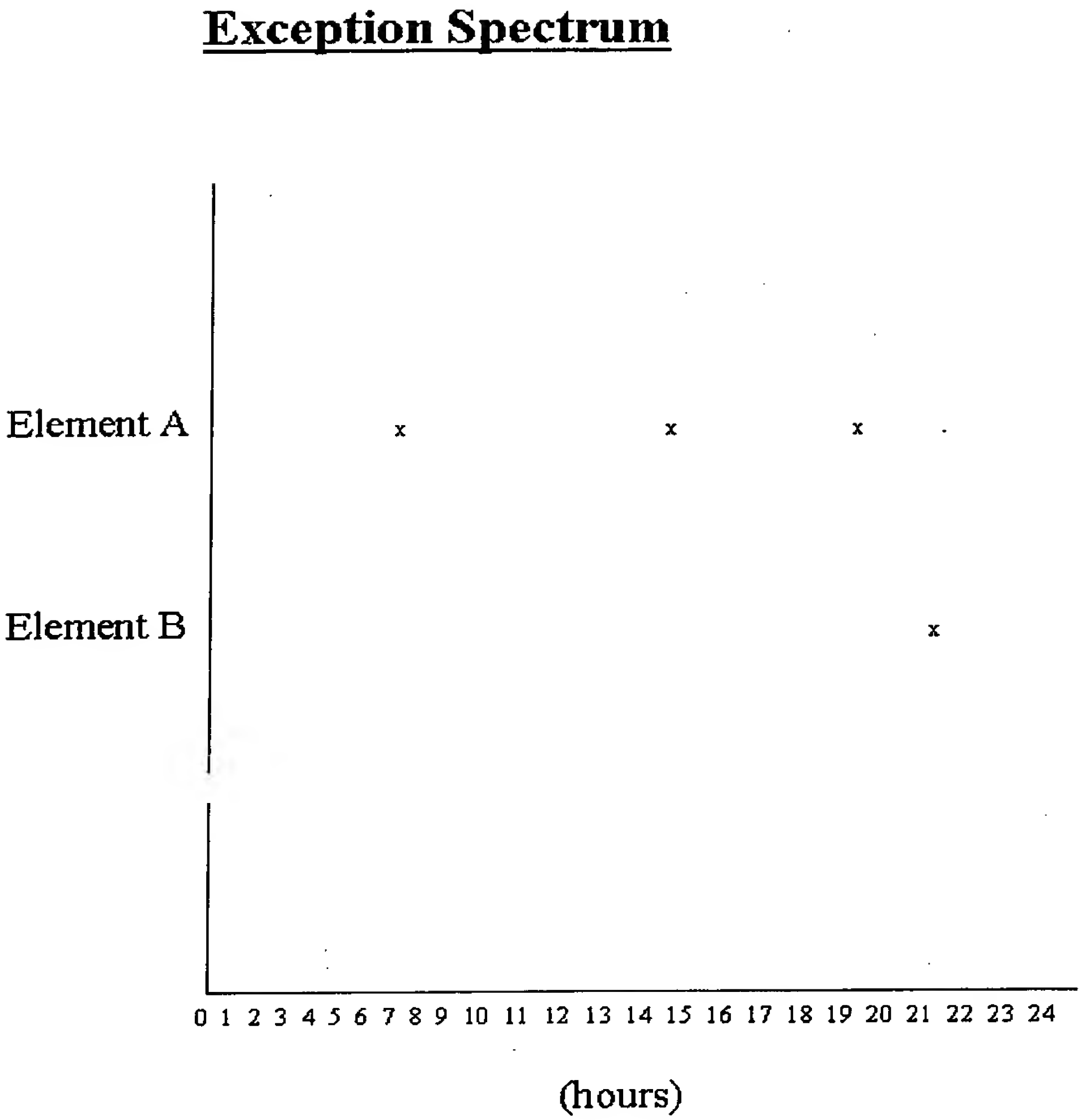

Exception Spectrum
Element A
x
x
x
Element B
x
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
(hours)

Figure 29

Exception Text Report

Date – Time	Element	Event string	Duration	Severity
01/12/1998 06:34:12	nsmmws16	CPU Utilization over 80%		Critical
01/12/1998 08:01:23	nsmmws09	Host down	3:24:43	Critical
01/12/1998 16:54:52	twmmnt02	FTP service down	0:19:42	Critical

Figure 30

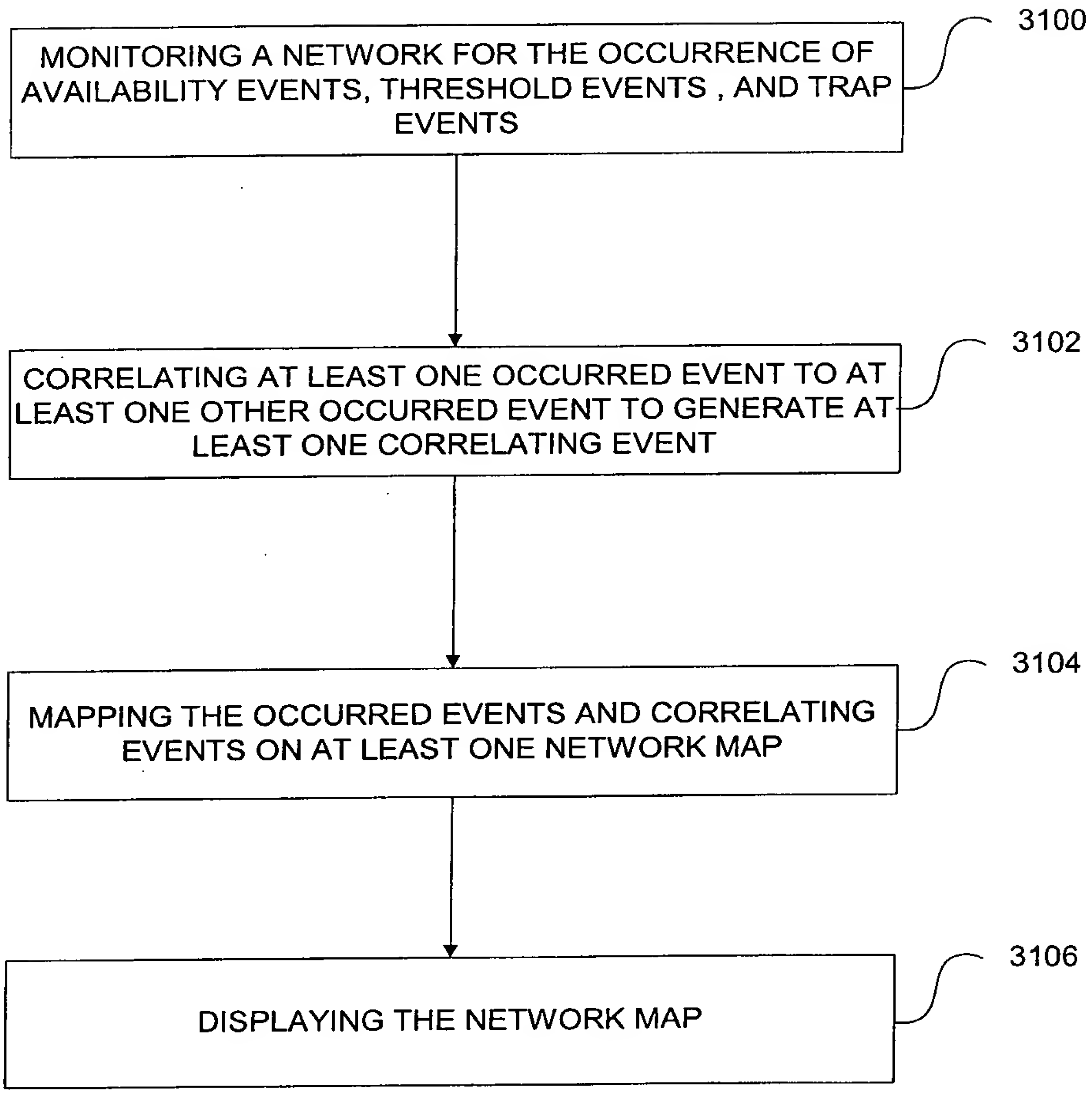
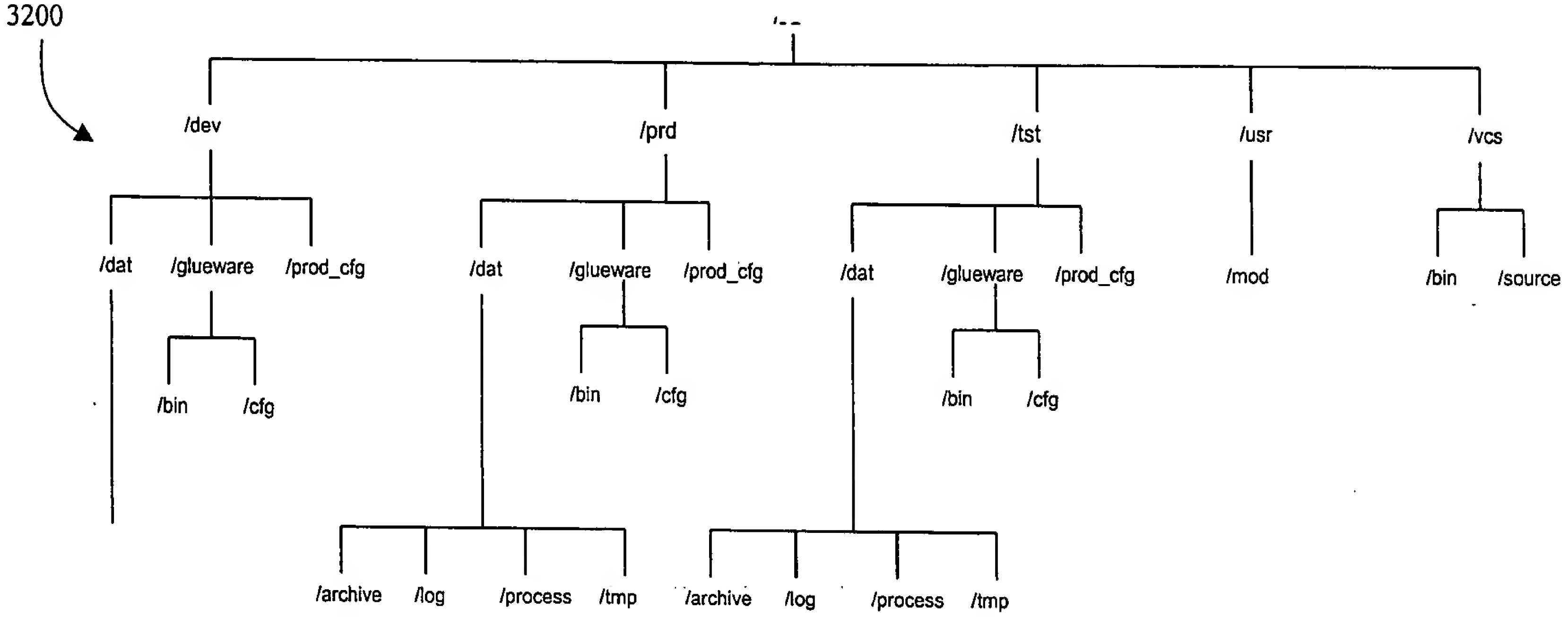

MONITORING A NETWORK FOR THE OCCURRENCE OF AVAILABILITY EVENTS, THRESHOLD EVENTS , AND TRAP EVENTS
3100
CORRELATING AT LEAST ONE OCCURRED EVENT TO AT LEAST ONE OTHER OCCURRED EVENT TO GENERATE AT LEAST ONE CORRELATING EVENT
3102
MAPPING THE OCCURRED EVENTS AND CORRELATING EVENTS ON AT LEAST ONE NETWORK MAP
3104
DISPLAYING THE NETWORK MAP
3106

Figure 31



Current Settings/Valid Values

Directory structure will be stored on ucmmfs02

The directory /sa will be the mount point to
nsmmws09, nsmmws16, and twmmdb02
Files owned by with group of twsa

Figure 32